The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

179

Vol. 136, No. 9 CHICAGO, ILLINOIS FEBRUARY 28, 1948

Copyright, 1948, by American Medical Association

TUBERCULOUS MENINGITIS IN CHILDREN

A Preliminary Report of Its Treatment With Streptomycin and "Promizole"

EDITH M. LINCOLN, M.D.
THOMAS W. KIRMSE, M.D.
and
ESTELLE DE VITO, M.D.
New York

Sulfones and streptomycin are the first therapeutic agents to provide encouraging results in the management of previously fatal forms of tuberculosis. Since 1944, "promizole" (4,2′-diaminophenyl-5′-thiazolyl sulfone) has been used in the Chest Clinic of the Children's Medical Service, Bellevue Hospital.[1] The use of "promizole' 'in miliary tuberculosis has produced encouraging results. Of 7 patients treated for more than a month, 5 are living and well. Three of these patients have been followed more than three years with no recurrence of the disease and no new manifestations of hematogenous dissemination. However, treatment of tuberculous meningitis with "promizole" alone was unsuccessful. Five successive patients died six to twenty-five days after treatment was begun, and pathologic examination of the brains in 2 cases showed no demonstrable retardation of the disease.

Cooke, Dunphy and Blake [2] were the first to report the use of streptomycin intrathecally in human tuberculous meningitis. The patient, an infant, has survived thirty months since treatment was started but is now mentally retarded and probably deaf. Krafchik's [3] patient, also an infant, relapsed ten months after treatment was instituted. A two month course of streptomycin was repeated, and the patient remained well twenty-one months after the original treatment was started and twelve months after relapse. Mentality and development have been normal. Bornstein [4] treated a 4 year old boy who had miliary tuberculosis. Meningitis developed during convalescence; streptomycin was again administered, but death occurred within a month. Appelbaum's [5] patient was still living and apparently normal fourteen months after streptomycin therapy was started and eight months after therapy was completed. Vignec's [6] patient became deaf while under treatment and died after several months. Craig's [7] patient was treated for five months for miliary tuberculosis but contracted meningitis eighteen days after therapy was completed and died within two weeks. McDermott [8] treated 10 patients with meningitis; 7 died; only 1 is in good clinical remission. Hinshaw and Feldman [9] treated 12 patients who had meningitis; 4 survived; only 1 showed no residual neurologic signs. The Veterans Administration, the Army and the Navy [10] treated 91 patients with meningeal involvement; 33 are living. Only 18 of these are clinically well. In Debré's [11] series of 80 patients, 50 per cent died and not more than 5 per cent of the survivors were in good clinical remission.

M. I. Smith [12] treated infected albino rats with streptomycin and "promin" (sodium p,p-diaminodiphenylsulfone-N,N′-didextrose sulfonate) individually and in combination. He concluded that together these drugs exerted an action greater than might have been anticipated from a simple summation of effects. Cocchi [13] treated 28 patients having meningitis with streptomycin and "promin"; 7 died during treatment.

Because of our encouraging results with "promizole" in miliary tuberculosis, we decided to treat our patients having meningitis with both "promizole" and streptomycin, hoping to utilize the rapid action of streptomycin temporarily and then continue treatment with "promizole," since this sulfone can apparently be given safely and effectively over a period of years.

DOSAGE

"Promizole" was administered orally at six or twelve hour intervals so that the total daily dosage was 0.5 to 1.0 Gm. This daily dose was gradually increased until a blood level of 2 to 3 mg. per hundred cubic centimeters was obtained. As much as 5 Gm. daily has been given. A maintenance dose of 1 Gm. daily may be adequate after the first six months of treatment.

No attempt was made to give streptomycin on a weight basis. The dosage in older or larger children

---

From the Chest Clinic of the Children's Medical Service, Bellevue Hospital, and the Department of Pediatrics, New York University. Aided by grants from the National Tuberculosis Association and Parke, Davis & Company. "Promizole" was supplied by Parke, Davis & Company.

[1] Milgram, L.; Levitt, I., and Unna, M. S.: Promizole Treatment of Miliary Tuberculosis: Toxic Effects on Thyroid Gland and Maturation, Am. Rev. Tuberc. **55**: 144 (Feb.) 1947. Lincoln, E. M.; Stone, S., and Hoffman, O. R.: Treatment of Miliary Tuberculosis with Promizole, Bull. Johns Hopkins Hosp. **82**: 76 (Jan.) 1948.

[2] Cooke, R. E.; Dunphy, D. L., and Blake, F. G.: Streptomycin in Tuberculous Meningitis: A Report of Its Use in a One Year-Old Infant, Yale J. Biol. & Med. **18**: 221 (Jan.) 1946.

[3] Krafchik, L. L.: Tuberculous Meningitis Treated with Streptomycin, J. A. M. A. **132**: 375 (Oct. 19) 1946.

[4] Bornstein, P. K.: Streptomycin in Tuberculous Meningitis, Quart. Bull., Sea View Hosp. **8**: 219 (July) 1946.

[5] Appelbaum, E., and Halkin, C.: Tuberculous Meningitis and Miliary Tuberculosis Arrested with Streptomycin, J. A. M. A. **135**: 153 (Sept. 20) 1946.

[6] Vignec, A. J.: Personal communication to the authors.

[7] Craig, R. H.: Miliary Tuberculosis Treated with Streptomycin, Canad. M. A. J. **57**: 289 (Sept.) 1947.

[8] McDermott, W.: Personal communication to the authors.

[9] Feldman, W. H.; Hinshaw, H. C., and Pfuetze, K. H.: Treatment of Tuberculosis with Streptomycin, J. A. M. A. **132**: 778 (Nov. 30) 1946.

[10] The Effects of Streptomycin on Tuberculosis in Man: Preliminary Statement, report of the Council on Pharmacy and Chemistry, J. A. M. A. **135**: 634 (Nov. 8) 1947.

[11] Debré, R.: Personal communication to the authors.

[12] Smith, M. I.; McClosky, W. T., and Emmart, E. W.: Influence of Streptomycin and Promin on Proliferation of Tubercle Bacilli in the Tissues of Albino Rat, Proc. Soc. Exper. Biol. & Med. **62**: 157 (June) 1946.

[13] Cocchi, C.: Primi resultati nella terapia delle meningiti tubercolari con la streptomicina associata a solfone e vitamina A, Rev. clin. pediat. **45**: 193 (April) 1947.

was quickly increased to 2 Gm. intramuscularly daily in divided doses, usually at six hour intervals, although several patients were treated only twice daily. Infants and small children were given 0.5 to 1 Gm. intramuscularly daily. All patients received 0.1 Gm. of streptomycin intrathecally daily during at least the first week of treatment. We attempted to use streptomycin intrathecally for two months. After one or two weeks technical difficulties in performing daily punctures or toxic manifestations such as increased ataxia, nystagmus or transient strabismus may appear. Streptomycin was then given intrathecally only on alternate days, or the dosage of intrathecal streptomycin was reduced to 0.5 Gm. daily. In most cases, 0.1 Gm. intrathecally on alternate days was well tolerated and only minimal toxic signs occurred. After six weeks, if improvement continued, intrathecal therapy was given only every third or fourth day. In the course of two months from twenty-five to forty intrathecal doses were given, depending on the individual response to therapy. After two months of intrathecal therapy, a weekly, bimonthly or monthly spinal puncture was performed in order to judge the general course of the disease. This is important because of the frequency with which relapses have been reported.

Intramuscular administration of streptomycin was continued for a period of six months. At least 1 of our patients tolerated the initial dose for the entire period without interruption. More often the dosage had to be reduced or discontinued for a few days when severe toxic disturbances occurred. When reinstituted in gradually increasing doses, the maximum dose may be tolerated again without recurrence of the same toxic symptoms.

TOXIC MANIFESTATIONS

The toxic effects of "promizole" have been previously reported.[1] All our patients in this series showed some degree of thyroid enlargement within two to five months. Leukopenia did not occur. No effect on sexual maturation has so far been noted in these patients, nor have there been any other manifestations of "promizole" toxicity.

The most striking toxic effect of streptomycin occurred after intrathecal therapy. One to four hours after streptomycin is given intrathecally, increased ataxia, nystagmus, transient strabismus and vomiting may occur. We have seen it as early as the second day of treatment, but it is more commonly noted after three to four weeks. Some degree of ataxia was apparent in all our patients by the end of three to four weeks. Vomiting was frequent and required discontinuing the drug for several days in 1 of our patients to prevent undue nutritional disturbance. In several others, vomiting occurred daily after one meal, usually breakfast. If the interval between treatment and meals was increased, vomiting was less likely to occur. Three patients had generalized rashes during therapy with streptomycin. One rash was macular, and one erythematous followed by urticaria and associated with eosinophilia; a third child had a transient generalized papular rash during the first month of treatment but eosinophilia was not noted until three months later. These were the only cases in which eosinophilia was observed. One child had transient cylindruria associated with albuminuria during the third and fourth weeks, and the blood nonprotein nitrogen content rose to 53 mg. per hundred cubic centimeters during this period.

Deafness is the most dreaded toxic result of administration of streptomycin. None of our recovered patients are deaf by gross measurement, and this is true of 12 additional children treated with streptomycin for forms of tuberculosis other than meningitis. One patient became blind and deaf during the first month of tuberculous meningitis while being treated. It is impossible to state whether this was due to the disease or to the therapy, but he ultimately recovered from the meningitis with a complete restoration of vision and hearing.

COURSE OF MENINGITIS TREATED WITH STREPTOMYCIN AND "PROMIZOLE"

In preparation for the treatment of tuberculous meningitis by specific agents, a survey of our previous cases was recently undertaken in order to study the natural course of the disease.[14] In order to establish the success of any therapeutic agent, it is important first to be sure of the diagnosis of tuberculous meningitis and exclude the possibility of serous tuberculous meningitis, which has a less serious prognosis. It is also important to make the diagnosis of tuberculous meningitis as early as possible before irreversible neurologic damage has taken place.

Tuberculous meningitis in the first stage is more likely to be diagnosed early when the patient is already under supervision for tuberculosis. Meningitis may be suspected because of vomiting, drowsiness or irritability, but a definite diagnosis can only be made by examination of the spinal fluid. Even when streptomycin has been given early, the child usually passes to the second stage of meningitis and shows some of the neurologic responses associated with tuberculous meningitis, and the course may be similar to that of an untreated patient. The duration of the second stage under treatment may vary from several weeks to several months. The third, or comatose, stage of the disease may develop under treatment and yet be followed by complete recovery. Fever is usually slow to decline but may persist for several months. Loss of weight and weakness usually were pronounced, but the appetite in our cases remained good. On the whole, therapeutic response during the first month of treatment seemed slight. During the second month gain in weight, decline in temperature and an increase in well-being occurred. Toxic manifestations such as ataxia, periodic or severe vomiting, irritability and restlessness may be observed.

In our cases, neurologic signs cleared slowly. Diminished or even absent superficial and deep tendon reflexes may persist throughout the course of treatment and even into the convalescent period. Patient 2 still has a slight internal strabismus seven months after onset of meningitis. Patient 6 shows coarse tremor of both hands four months after diagnosis of meningitis. The sensorium was clouded during the height of the disease in all cases, and 1 patient (patient 5) was blind, deaf and apparently oblivious of his surroundings for over a month. However, none of the patients who recovered from tuberculous meningitis have any signs of mental impairment.

SPINAL FLUID CHANGES IN TREATED PATIENTS

The sugar content of the spinal fluid remained low during the first week or longer, then showed an irregular return to normal in three to twelve weeks. Proteins remained below 250 mg. per hundred cubic centimeters in 5 patients but were very high in 2: 6,200 mg. in patient 1, who died, and 2,100 mg. in patient 6 three weeks after the last intrathecal administration of streptomycin. The protein content of the spinal fluid returned to normal in 5 of our surviving patients within three to five months. Patient 6, five months after onset of meningitis, still has a protein content of over 400 mg. per hundred cubic centimeters. Cell counts were over 1,000 per cubic millimeter at some time in the course of intrathecal therapy in all patients, but had all returned to normal before the end of the fourth month of therapy.

---

[14] Lincoln, E. M.: Tuberculous Meningitis in Children with Special Reference to Serous Meningitis, Am. Rev. Tuberc. 56: 75 (Aug.) 1947.

REPORTS OF CASES

Case 1.—E. S., a white girl aged 9 months, was admitted Dec. 21, 1946 with a history of fever, poor appetite and vomiting of two weeks' duration. Three days before admission, the child's neck became stiff. A roentgenogram of the chest disclosed right hilar enlargement and infiltration at the base of the right lung. Physical examination revealed a pale, flabby, moderately dehydrated, very unresponsive child. The temperature was 102.6 F. The anterior fontanel was bulging; pupils reacted sluggishly to light. Biot type breathing was present.. There was pronounced nuchal rigidity and the superficial and deep reflexes were hyperactive.

The spinal fluid was clear with 90 cells per cubic millimeter and 76 mg. of protein and 46 mg. of sugar per hundred cubic centimeters. Tubercle bacilli were found on direct examination and culture. In a guinea pig inoculated with spinal fluid extensive tuberculosis developed.

On the second hospital day the child had a generalized convulsion and held the extremities rigidly. Superficial and deep reflexes were absent. Streptomycin and "promizole" were started on December 23 and continued until February 26. Intrathecal streptomycin was continued daily until January 27. Technical difficulties in performing lumbar punctures made it necessary to use the cisternal or ventricular routes thereafter.

For several weeks the child showed increased attentiveness, purposeful motions of the upper extremities and some interest in her surroundings. In early February her general condition became worse. Increased irritability, right internal strabismus and Cheyne-Stokes respiration were present. The temperature rose to 105 F. Death occurred on Feb. 26, 1947. No necropsy was obtained.

The patient received "promizole" orally 1.0 to 1.5 Gm. daily, and streptomycin, 0.6 Gm. intramuscularly daily for sixty-six days and 0.05 to 0.1 Gm. intrathecally for forty days, a total of 42 Gm. of streptomycin (38,000 units per pound [83,700 per kilogram] per diem).

Case 2.—H. R., a Negro boy aged 11 years, was admitted Jan. 28, 1947. For one year he had noticed tenderness over the right forearm and limited motion of the right wrist. At another hospital, the reaction to the Mantoux test was positive to 0.01 mg. of old tuberculin. An abscess at the wrist was aspirated and guinea pigs inoculated with the fluid obtained died of extensive tuberculosis. Draining sinuses developed at the points of aspiration.

On admission to Bellevue Hospital, the patient appeared thin. There was tenderness over the upper dorsal vertebrae and dulness over the right lower part of the chest. Superficial and deep reflexes were active. Roentgenograms disclosed paravertebral infiltration involving the upper thoracic part of the spine, extensive destructive spondylitis involving the fifth, sixth and seventh thoracic vertebrae and a small area of rarefaction in the upper third of the shaft of the right ulna with surrounding osteoid density. The patient was placed on a Bradford frame.

During the first three weeks the temperature varied from 101 to 103 F.; it then declined to around 100 to 101 F. Roentgenograms of the chest taken in March revealed definite miliary infiltration, and "promizole" was started. About one week later the patient complained of headache and occasional vomiting. The temperature, which had been steadily rising for several weeks, reached 105 F. on April 5, and the patient then complained of photophobia, diplopia, increased vomiting and somnolence. Left external strabismus was first noted. The neurologic examination otherwise elicited no abnormality.

In the spinal fluid there were 240 cells per cubic millimeter, predominantly mononuclear, and 100 mg. of protein and 40 mg. of sugar per hundred cubic centimeters. Streptomycin therapy was begun the same day. Signs of meningeal irritation subsided, but an irregular septic type of fever continued until the course of intrathecal streptomycin was completed.

During the acute febrile stage of his illness, the patient lost 11 pounds (5 Kg.), but he has since regained and surpassed his admission weight. The temperature has remained normal the past two months. Serial roentgenograms of the chest showed complete clearance of the miliary tuberculosis two months after antibiotic therapy was started and maximum regression of the paravertebral abscess within three months. The sinus tracts of the right forearm ceased draining after six weeks. The dorsal vertebrae showed no change and the patient was placed in a plaster of paris cast. The thyroid isthmus was palpable, and a mild degree of left external strabismus is still present but does not interfere with vision.

The patient received "promizole" orally, 1 to 5 Gm. daily, and streptomycin, 1.5 Gm. intramuscularly daily, for one hundred and eighty-three days and 0.1 Gm. intrathecally in twenty-four lumbar punctures over a period of fifty-four days, a total of 276.0 Gm. of streptomycin (31,000 units per pound [68,280 per kilogram] per diem).

Case 3.—J. Y. was a white boy aged 4 years. In March 1947 he had a sore throat with headache and a temperature as high as 105 F., which declined to normal in ten days. Two weeks later he had a recurrence of these symptoms, with nose bleeds and pains in the knees; he was admitted to Bellevue Hospital on April 16, 1947 with a diagnosis of rheumatic fever.

Physical examination revealed a well nourished, very pale, mentally alert but acutely ill child. The only abnormalities noted were palpable cervical lymph nodes, slightly injected hypertrophied tonsils and that the liver was palpable 1 cm. below the costal margin. The reaction to the Mantoux test was strongly positive, and a roentgenogram of the chest disclosed miliary tuberculosis. Administration of streptomycin and "promizole" was instituted on April 24. Miliary tubercles were seen in the fundi; tubercle bacilli were found in the blood culture.

After one month the miliary lesions of the lungs appeared definitely decreased in size and number, and two weeks later there was no further roentgen evidence of miliary infiltrations.

By the end of the second month, the temperature had again become elevated. All specific therapy was discontinued for sixteen days, during which time other causes of fever were investigated. The spinal fluid cell count and chemical studies revealed normal values. The temperature remained high and streptomycin was again started. Seven days later the patient complained of headache, photophobia and vomiting. There was pronounced nuchal rigidity associated with a positive Kernig sign, bilateral ankle clonus and absent abdominal reflexes. The spinal fluid was cloudy with 413 cells per cubic millimeter and 124 mg. of protein and 30 mg. of sugar per hundred cubic centimeters. Tubercle bacilli were found by direct examination and on culture of the spinal fluid. "Promizole" and intrathecal streptomycin were instituted.

During the course of combined intramuscular and intrathecal therapy, the acute symptoms subsided rapidly and variable responses were obtained on subsequent neurologic examinations. Occasional vomiting occurred after the course of intrathecal therapy was completed but subsided when the intramuscular dose was reduced. The subsequent course has been afebrile and uneventful. Physical and neurologic examination revealed no abnormality except for a mild ataxia which does not interfere with normal activity and play.

The patient received "promizole" orally, 1 and 1.5 Gm. daily, and streptomycin, 1 to 2 Gm. intramuscularly, for one hundred and seventy-five days; streptomycin, 0.1 Gm., was given intrathecally in thirty-six lumbar punctures during a period of sixty-six days. A total of 229 Gm. of streptomycin was given (55,000 units per pound [121,150 per kilogram] per diem).[15]

Case 4.—L. W., a 3 year old Negro boy, admitted May 3, 1947. A diagnosis of primary tuberculosis was made in January 1947, and under home care the child continued to have fever, easy fatigue, loss of weight and poor appetite. In April he complained of headache and abdominal pain. The symptoms persisted and the patient was hospitalized.

Physical examination revealed a well developed and nourished alert child weighing 32 pounds (13.6 Kg.). The temperature was 103 F., and except for the shotty cervical lymph nodes the general examination revealed no other abnormalities.

On the third hospital day he became irritable and apathetic. The neck was decidedly stiff and bilateral ankle clonus was present. The spinal fluid was cloudy with 188 cells, predominantly lymphocytes, per cubic millimeter and 66 mg. of protein and 23 mg. of sugar per hundred cubic centimeters. A guinea pig inoculated with spinal fluid died of extensive tuberculosis.

Streptomycin and "promizole" were started, and during the next few weeks variable neurologic signs were present. On the twenty-first day of treatment the child had a generalized convulsion. On the twenty-ninth day increased ataxia, nystagmus and facial edema were noted. The liver was palpable 4 cm. below the costal margin. Streptomycin was reduced to 1 Gm. intramuscularly daily.

During the third month excellent clinical improvement was apparent, the neurologic examination was normal, the child gained weight and remained cheerful and playful. The thyroid gland had become definitely palpable. Small doses of desiccated thyroid extract were given, and physical and mental improvement were apparent within a few weeks.

The last three months of treatment were uneventful, and except for a mild degree of ataxia there was no evidence of impairment.

The patient received "promizole," 0.5 to 1 Gm. daily, and streptomycin, 1.5 Gm. intramuscularly daily, which was reduced to 1 Gm. daily during the fifth week. Streptomycin, 0.1 Gm. intrathecally, was given thirty-five times during a period of fifty-six days. A total of 207 Gm. of streptomycin was given in one hundred and ninety days (47,000 units per pound [103.520 per kilogram] per diem).

Case 5.—E. D., a Negro boy aged 2, was admitted May 19, 1947 with a history of fever, swelling of the cervical lymph nodes, cough, nasal discharge and pronounced loss of weight and appetite of three weeks' duration.

Physical examination revealed an emaciated chronically ill child. The temperature was 103.4 F. The reaction to the patch test was positive, and a roentgenogram of the chest disclosed widening of the mediastinum and enlarged left hilar nodes.

On the sixth day, somnolence, nuchal rigidity and hyperactive reflexes were associated with positive Kernig and Brudzinski signs. The spinal fluid was clear with 15 cells per cubic millimeter and 275 mg. of protein and 15 mg. of sugar per hundred cubic centimeters. Acid-fast bacilli were found in the pellicle. Streptomycin and "promizole" were started the same day. The child could be roused to take food and fluids and cried on attempts to move extremities passively. During the third and fourth weeks of his disease, the child became blind and hearing was apparently completely lost. Transient cylindruria and albuminuria appeared and the blood nonprotein nitrogen rose to 53 mg. per hundred cubic centimeters.

During the second month a vegetative, somewhat decerebrate existence continued. The usual course of intrathecal streptomycin was completed. By the fourth month, vision and hearing were restored. The child held his cup and showed evidence of gain in weight and strength. He now stands up in bed, feeds himself, plays with his toys and talks and laughs heartily at games in which the other children engage. Neurologic examination revealed no abnormalities.

The patient received 1 Gm. of streptomycin intramuscularly daily for two weeks, when the dosage was decreased to 0.5 Gm. In one hundred and eighty-five days 101.6 Gm. of streptomycin was given intramuscularly. The drug was given intrathecally thirty-four times in fifty-eight days. Total combined streptomycin was 105 Gm. (25,000 units per pound [55,070 per kilogram] per diem).

Case 6.—S. E., a Negro girl aged 7, was admitted July 7, 1947. For one week she had complained of headache and sleepiness, during which time she became more irritable and feverish and vomited everything that she ate.

Physical examination revealed a lethargic, chronically ill child weighing 31 pounds (14.1 Kg.). There was stiffness of the back and pain on motion of the extremities. Nuchal rigidity was associated with hyperactive reflexes and positive Kernig's and Brudzinski's signs. The reaction to the patch test was positive, and a roentgenogram of the chest disclosed large hilar and mediastinal nodes.

The initial lumbar puncture showed 99 cells, predominantly lymphocytes, per cubic millimeter and 158 mg. of protein and 35 mg. of sugar per hundred cubic centimeters. Streptomycin and "promizole" were started on July 8. Acid-fast bacilli were found in the spinal fluid on the eleventh, twelfth and fourteenth days after therapy was begun. The patient showed slow but steady improvement during the first three weeks, remained conscious at all times and sat up for brief intervals to play with toys.

During the fourth week, increased drowsiness and stiff neck recurred, associated with coarse tremors of the hands. Photophobia, nystagmus and fleeting pathologic reflexes were present from time to time during the next three weeks, suggestive of encephalitis. Cisternal punctures were performed for several days but there was no evidence of block. The patient became disoriented, and streptomycin was discontinued for three days because of severe vomiting.

Streptomycin was reordered with a maximum dose of 1 Gm. intramuscularly daily. This was well tolerated for four weeks with evidence of improvement, when vomiting recurred associated with listlessness and difficulty in speech and swallowing. All treatment was then discontinued. The child at present is weak and still has transient coarse tremor of the upper extremities. Neurologic examination is otherwise negative. She is clear mentally, able to feed herself, draw pictures and play with toys. Although she tires easily, she acts like a child convalescent from a severe illness.

The patient was given "promizole," 1 to 2 Gm. daily, and streptomycin, 1 to 2 Gm. intramuscularly daily. Intrathecal therapy consisted of thirty-seven lumbar and three cisternal punctures over a fifty-eight day period. Total combined streptomycin was 132 Gm. in ninety-six days (58,000 units per pound [127,750 per kilogram] per diem).

Case 7.—O. V., a boy aged 23 months, was referred to the hospital on July 28, 1947 with a diagnosis of primary tuberculosis. Physical examination revealed a healthy well nourished afebrile child weighing 33 pounds (14,969 Gm.). There was dulness in the right side of the chest anteriorly below the fourth rib level. The liver edge and spleen were palpable. A roentgenogram of the chest disclosed widening of the mediastinum to the right and mottling in the lower third of the right lung.

Fever (102 to 103 F.) first appeared during the third week. On the twenty-sixth hospital day, irritability, somnolence, muscle twitching and nuchal rigidity were noted. Hyperactive reflexes and unsustained ankle clonus were present. The spinal fluid was cloudy with 378 cells, predominantly lymphocytes, per cubic millimeter and 124 mg. of protein and 32 mg. of sugar per hundred cubic centimeters. Streptomycin and "promizole" were started on August 22.

Two days later the child was again active and playful and sat up in his crib. Neurologic examinations showed variable responses from day to day. Clinical improvement has been evident throughout most of the course of treatment. The child now weighs 40 pounds (18,144 Gm.), talks clearly, plays vigorously and remains healthy and active. Ataxia is apparent only when blindfolded. Three months of intramuscular administration of streptomycin have been completed (1 Gm. daily); it will be continued for the full six month period. Thirty-seven therapeutic lumbar punctures were performed in fifty-seven days. When treatment is completed, 186 Gm. of streptomycin will have been given by combined therapy (40,000 units per pound [88,110 per kilogram] per diem).

---

[15] On Nov. 19, 1947 routine examination of the spinal fluid of this patient showed a sugar content of 25 mg. per hundred cubic centimeters and a protein content of 52 mg. per hundred cubic centimeters; culture of this fluid was positive for tubercle bacilli. The patient showed no clinical evidence of meningitis. He has been retreated with streptomycin, and subsequent spinal fluid cultures have shown no growth.

COMMENT

Streptomycin has revolutionized our attitude toward tuberculous meningitis. Before this antibiotic was introduced, the outlook was hopeless. This serious prognosis has been modified by the use of streptomycin; some patients have apparently been cured. But it is obvious from the literature that in some cases arrested by streptomycin, relapse and death have occurred; and some patients who survived have extensive residual neurologic damage.

We decided to attempt the treatment of tuberculous meningitis by combining "promizole" and streptomycin in order to avail ourselves of the peculiar advantages each possesses. "Promizole" can be given orally and for a period of years with apparently no serious toxic results. It seems to have an inhibitory action on hematogenous tuberculosis, but clinical evidence of its action is usually delayed until at least six weeks after the drug is first given. Streptomycin acts more quickly but cannot be given orally and is more toxic; there is also evidence that tubercle bacilli may develop resistance to it. Moreover, M. I. Smith has shown in guinea pigs that the use of a sulfone and streptomycin together enhances their action beyond the expected value of either alone.

SUMMARY AND CONCLUSIONS

Seven patients with tuberculous meningitis were treated with streptomycin and "promizole." The first patient died after two months of treatment. Six patients are living three to eight months after treatment was instituted. They are all normal mentally and have no neurologic sequelae except for a mild degree of strabismus in case 2 and transient coarse tremors of the upper extremities in case 6.

Six patients had roentgen evidence of active primary tuberculosis and 2 of these had pulmonary miliary tuberculosis. In 5 patients meningitis developed under observation, in 1 after two months of combined treatment for miliary tuberculosis.

Tubercle bacilli were found in the spinal fluid of 5 patients. In another patient bacilli were obtained by guinea pig inoculation from an accompanying bone lesion but were not demonstrated in the spinal fluid.

No serious toxic effects of "promizole" were noted. All cases showed enlarged thyroid two to five months after treatment was begun. The only constant toxic reaction to streptomycin was ataxia which developed in the third or fourth week after institution of therapy. There is no evidence of auditory impairment in any of our patients.

Our patients have not been under observation long enough to report as cured but we have 6 patients with tuberculous meningitis out of 7 treated patients who have no pronounced neurologic damage and are normal mentally. We are making a preliminary report at this time hoping that other cases will be published in order to increase our knowledge of the treatment of tuberculous meningitis.

INTRATHECAL THERAPY NOT REQUIRED FOR H. INFLUENZAE MENINGITIS

A Report of 28 Cases

ARCHIBALD L. HOYNE, M.D.
and
ROWINE HAYES BROWN, M.D.
Chicago

Since 1939, when Alexander[1] developed specific type B anti-influenzal rabbit serum, interest in influenzal meningitis has been greatly intensified. Many reports of recoveries have been published during the past five years, and much has been written concerning this disease, which was formerly almost universally fatal.[2] Nevertheless, although sulfonamide compounds, specific serum and streptomycin are all valuable therapeutic aids, there is no standard accepted for their application. Those who make use of intrathecal treatment cling tenaciously to the method as an old established custom which cannot be relinquished. However, more than twelve years ago one[3] of us reported on the exclusive use of intravenous therapy for patients with meningitis and demonstrated its advantages, including lowered fatality rates,[4] when large doses of serum were injected and intrathecal therapy was abandoned. Although when first inaugurated this plan applied to meningococcic infections, it was soon found equally effective for all[5] forms of meningitis regardless of the causative organism. But intrathecal treatment has by no means been relegated to the past by most physicians. And many with extensive experience still believe that numerous spinal taps for drainage are necessary in purulent meningitis. Silverthorne and Cameron[6] advised daily lumbar punctures with drainage until at least three successive specimens of spinal fluid are sterile. They referred to meningococcic meningitis. But we are convinced that one[7] spinal tap for diagnosis is sufficient as a rule for any kind of meningitis.

Smith and co-workers[8] reported 28 cases of influenzal meningitis with only 2 deaths, and it is noteworthy that 25 of the 27 patients treated with serum received all or most of it intravenously. Moreover, 1 patient whose spinal fluid cultures remained positive was given serum intrathecally without apparent beneficial effect. These authors expressed the belief that patients with influenzal meningitis should be tapped daily until the spinal fluid cultures have been negative for several days and until the spinal fluid sugar has returned to normal. Such procedures are of scientific interest, as they were during earlier years in the treatment of meningococcic meningitis, but they are not necessary to bring about recovery. Strangely enough,

---

From Municipal Contagious Disease and Cook County Contagious Disease Hospitals.

[1] Alexander, H. E.: Type "B" Anti-Influenzal Rabbit Serum for Therapeutic Purposes, Proc. Soc. Exper. Biol. & Med. **40:** 313 (Feb.) 1939.

[2] Bloom, C. J.: Influenzal Meningitis Is Amenable to Treatment, New Orleans M. & S. J. **83:** 455 (Jan.) 1931. Neter, E.: Observations on Hemophilus Influenzae (Type B) Meningitis of Children, J. Pediat. **20:** 699 (June) 1942.

[3] (a) Hoyne, A. L.: Meningococcic Meningitis: Importance of Intravenous Therapy, Illinois M. J. **68:** 307 (Oct.) 1935; (b) Treatment of Meningococcic Meningitis Without Intraspinal Therapy, Nebraska M. J. **21:** 321 (Sept.) 1936.

[4] Hoyne, A. L.: Meningitis, J. Iowa M. Soc. **26:** 549 (Oct.) 1936.

[5] Hoyne, A. L.: Improved Methods in Treatment of Meningitis, Mississippi Valley M. J. **66:** 7 (Jan.) 1944.

[6] Silverthorne, N., and Cameron, C.: Studies in Meningococcic Infection, J. Pediat. **19:** 618 (Nov.) 1941.

[7] Hoyne, A. L.: Epidemic Meningitis, J. A. M. A. **115:** 1852 (Nov. 30) 1940.

[8] Smith, M. H. D.; Wilson, P. E., and Hodes, H. L.: Influenzal Meningitis, J. A. M. A. **130:** 331 (Feb. 9) 1946.

the same authors seemed surprised at the results of their treatment without intrathecal therapy, for they stated, "owing either to chance or to the use of large doses of serum (the patients) seem to recover without intrathecal serum."

Type B anti-influenzal serum has been given intrathecally by many investigators, some of whom reported shock,[9] anaphylactic reactions, hydrocephalus and other complications [10] which were so common during the early days of serum therapy for meningococcic meningitis. In addition, it is sometimes said that even though specific type B anti-influenzal rabbit serum is injected intraspinally [11] every twenty-four hours, or more often, for a period of several days, still positive cultures for Hemophilus influenzae have been obtained from the spinal fluid. Such an occurrence parallels exactly our experience with meningococcic meningitis when intrathecal treatment was routine. Moreover, it seems to us that there is no doubt but that intrathecal treatment prolongs the time required for recovery, and one of us has called attention to that fact.[12]

Edmonds and Neter [11] have expressed the opinion that the matter of intrathecal therapy is still a moot question. Nevertheless, they enumerated many of the ill effects of intrathecal treatment, and most of their recovered patients had serum solely by the intravenous route. They cited 4 cases in which serum was given intraspinally and intracisternally at a time when many micro-organisms were present in the cerebrospinal fluid, a circumstance which these authors intimated was responsible for fatal terminations in all 4 patients. Various difficulties were also encountered with other patients, who received intraspinal therapy. If intrathecal administration of serum is not of value when there are many organisms in the spinal fluid, why then, if given in this manner, should it be beneficial at any stage of the disease? Since 1934 [3b] we have treated without any intrathecal therapy several thousand patients with meningitis of various kinds and the results were remarkably successful. Included among them one [13] of us reported 16 recoveries from influenzal meningitis; of the 16 patients only 3 received intrathecal treatment.

Reporting on the use of specific antiserum intrathecally and intravenously for influenzal meningitis, Blumberg, Tannenbaum and Gleich [14] stated that the mortality rate was reduced only to 72 per cent. In their own series of 11 patients "only 6 died." In two thirds of their fatal cases intrathecal treatment was employed; in more than half of their recoveries it was not.

Although Alexander and co-workers [15] conceded that the time required to sterilize the spinal fluid is quite comparable whether serum is given intravenously exclusively or both intravenously and intraspinally, still they advised intrathecal administration of serum if after a period of several days evidence of satisfactory progress is lacking. Thus they displayed a lack of confidence in exclusive intravenous therapy. But they reported 33 instances in which both routes were followed and the fatality rate was 36.3 per cent, whereas for 17 with intravenous therapy only the fatality was 5.8 per cent.

The National Research Council advised when releasing streptomycin for the treatment of influenzal meningitis that this new antibiotic be injected intrathecally. And Nussbaum, Goodman, Robinson and Ray [16] advocated giving streptomycin intrathecally "in view of the failure of adequate amounts of this new drug to enter the spinal fluid when injected intravenously or intramuscularly."

We believe that intrathecal therapy is totally unnecessary, and it is largely for that reason that we are reporting the 28 cases of influenzal meningitis which are represented in the accompanying table. Our series consists of 16 consecutive cases at Municipal Contagious Disease Hospital and 12 consecutive cases at Cook County Contagious Hospital. One or both of us were in constant attendance on the entire group. There were 2 deaths. The single fatality at Municipal Contagious Disease Hospital occurred in a Negro girl who when admitted with whooping cough was 7 weeks of age. This was an emaciated child who had severe paroxysms of pertussis. After four weeks in the hospital a fever and bulging of the anterior fontanel developed. On that account an intraventricular puncture was made and a milky cerebrospinal fluid was released in which the cell count was 13,000 per cubic millimeter, mostly polymorphonuclear cells. Smear and culture of the spinal fluid revealed type B H. influenzae. After two intraventricular injections of 50,000 micrograms of streptomycin at twenty-four hour intervals, the laboratory reported both smear and culture of the spinal fluid as negative. The total number of intraventricular injections was eight, and intramuscular treatment with streptomycin in doses of 100,000 micrograms every three hours was continued for thirty days. Nevertheless, hydrocephalus developed and the infant died sixty days after the diagnosis of influenzal meningitis was established. The other death occurred at Cook County Contagious Hospital. The patient was a white boy, 12 months old, who entered the hospital with a temperature of 105.2 F. and whose condition was desperate at that time. Examination of the spinal fluid disclosed 1,770 cells per cubic millimeter, nearly all polymorphonuclear; both smear and culture of the spinal fluid were positive for H. influenzae. He received 50,000 micrograms of streptomycin intrathecally and 600,000 micrograms intramuscularly, but death ensued within thirteen hours of admission to the hospital.

All our patients in Municipal Contagious Disease Hospital were treated during the period from June 1946 to January 1947, inclusive; the Cook County Contagious Hospital group constituted all the patients with influenzal meningitis who were admitted during 1946. As may be seen in the table, 5 patients were less than 1 year of age. Twenty were boys and 8 girls.

---

[9] Josephi, M.; Mehlman, M. D., and Hagar, D.: Influenzal Meningitis in a Seven Month Old Infant, J. Pediat. **19:** 823 (Dec.) 1941.

[10] Birmingham, J. R.; Kaye, R., and Smith, M. H. D.: Streptomycin in the Treatment of Influenzal Meningitis, J. Pediat. **29:** 1 (July) 1946.

[11] Edmonds, A. M., and Neter, E.: Appraisal of Treatment of Hemophilus Influenzae Type B Meningitis with Specific Rabbit Serum and Sulfonamides, J. Pediat. **28:** 462 (April) 1946.

[12] Hoyne, A. L.: Intravenous Treatment of Meningococcic Meningitis with Meningococcic Antitoxin, J. A. M. A. **107:** 478 (Aug. 15) 1936.

[13] Hoyne, A. L.: Advances in Treatment of Meningitis, J. Pediat. **19:** 778 (Dec.) 1941.

[14] Blumberg, M. L.; Tannenbaum, E., and Gleich, M.: Advances in the Chemotherapy of Influenzal Meningitis, J. Pediat. **24:** 182 (Feb.) 1944.

[15] Alexander, H. E.; Ellis, C., and Leidy, G.: Treatment of Type-Specific Hemophilus Influenzae Infections in Infancy and Childhood, J. Pediat. **20:** 673 (June) 1942.

[16] Nussbaum, S.; Goodman, S.; Robinson, C., and Ray, L.: Influenzal Meningitis: Report of Three Cases Treated with Streptomycin and Sulfadiazine, J. Pediat. **29:** 14 (July) 1946.

There were 4 Negroes. Only 3[17] of the recovered patients at Municipal Contagious Disease Hospital received streptomycin intrathecally. This route was adopted on the recommendation of the National Research Council, which provided the remedy for these particular patients. In the County Hospital group 3 patients also received streptomycin intraspinally, and this number included the single fatality. Of the entire 28 patients, 18 were treated with streptomycin. Among these 18 there were 7 who received the antibiotic intraspinally; the remaining 11 were treated entirely by the intramuscular route. Only one relapse was encountered, and this occurred in the County Hospital group; the patient received type B anti-influenzal serum but no streptomycin. Every patient was given a sulfonamide drug irrespective of any other treatment.

Among the complications observed was hydrocephalus in the infant with whooping cough who died. Another patient had a left hemiplegia. He was seen several months after his release from the hospital and the condition seemed to be undergoing progressive improvement. An infant had paralysis of the left side of the face which cleared up. In addition 2 patients each had weakness of the left arm. It is interesting to note that in all 4 cases the paresis or paralysis occurred on the left side of the body. There was a single example of deafness which seemed to be complete. The child concerned, 2½ years of age, was treated with streptomycin for nine days, and whether the drug played any part in this complication is extremely doubtful.

Several of the patients were of special interest. The 7 week old baby (case 1) with whooping cough has been referred to. Another Negro infant, 7 months old (case 2) and also convalescing from whooping cough for which we had treated her, returned to the hospital forty-two days after release. Examination revealed the presence of fever and a tense fontanel. A lumbar puncture was made and a cell count of the spinal fluid found to be 11,000 per cubic millimeter; smear and culture revealed type B H. influenzae. This child was treated with streptomycin intramuscularly and recovered.

Patient 13 was admitted with influenzal meningitis approximately two months after his brother had been released from Munipical Contagious Disease Hospital after treatment for laryngotracheobronchitis which had required a tracheotomy. It was not determined whether there was any relationship between the infections in these siblings.

Patient 14 was sent to Municipal Contagious Disease Hospital for intubation because laryngeal diphtheria was suspected. The boy's temperature was 106 F., he was pale, lips cyanotic, and there were decided

Twenty-Eight Cases of Influenzal Meningitis

Case No.	Age	Blood Culture	No. of Lumbar Punctures	Spinal Fluid			Drug	Serum, Mg., All Intravenous	Streptomycin	Complications	Days in Hospital	Result
				Cell Count	Culture	Sugar						
				Municipal Contagious Disease Hospital								
1	7 wk.	None	1 1 Cist. 9 Vent.	13,000	Positive	..	D*	50	I. S.† I. M.‡	Hydrocephalus	60	Died
2	7 mo	None	1	11,200	Positive	..	D	...	I. M.	None	41	Recovered
3	9 mo.	None	3	650	Positive	60	D	...	I. M.	None	25	Recovered
4	10 mo.	Positive	1	1,750	Positive	27	D	...	I. M.	None	24	Recovered
5	13 mo.	Positive	3	3,000	Positive	50	D	100	I. S. I. M.	None	23	Recovered
6	18 mo	Negative	1	2,100	Positive	51	D	...	I. M.	None	21	Recovered
7	22 mo.	Positive	1	720	Positive	35	D	150	None	None	24	Recovered
8	2 yr.	None	1	1,440	Positive	34	D	...	I. M.	None	20	Recovered
9	2½ yr.	Negative	2	3,200	Positive	29	D	...	I. M.	Deafness	32	Recovered
10	3 yr.	Positive	1	8,640	Positive	45	D	...	None	None	20	Recovered
11	3 yr.	Positive	1	950	Positive	53	D	100	None	None	14	Recovered
12	3 yr.	Negative	5	1,800	Positive	21	D	150	I. M. I. S.	Left hemiplegia	46	Recovered
13	3 yr.	Positive	1	12,000	Positive	45	D	...	I. M.	Left facial paralysis	15	Recovered
14	5 yr.	Positive	1	5,760	Negative	76	D	...	I. M.	None	16	Recovered
15	5 yr.	Positive	1	1,800	Positive	20	D	...	None	None	16	Recovered
16	9½ yr.	Positive	4	5,000	Positive	18	P§	100	I. S. I. M.	None	21	Recovered
				Cook County Contagious Disease Hospital								
17	6 mo.	Positive	3	4,320	Positive	11	D	...	None	Weakness, left arm	35	Recovered
18	12 mo.	Positive	2	1,770	Positive	16	D	...	I. S. I. M.	None	13 hr.	Died
19	18 mo.	Negative	0	662	Positive	18	D	...	I. S. I. M.	None	45	Recovered
20	22 mo.	Positive	3	2,950	Positive	20	D	...	None	None	31	Recovered
21	2 yr.	Negative	1	35,000	Positive	18	D	...	I. M.	None	30	Recovered
22	2½ yr.	Negative	3	6,000	Positive	13	D	...	None	None	24	Recovered
23	2½ yr.	None	1	2,100	Positive	59	D	50	None	None	20	Recovered
24	3 yr.	Positive	4	1,000	Positive	16	D	125	I. S. I. M.	Weakness, left arm	29	Recovered
25	3 yr.	Positive	1	46,000	Positive	16	D	50	I. M.	None	24	Recovered
26	5 yr.	Positive	1	720	Positive	50	D	125	None	None	15	Recovered
27	6 yr.	Positive	1	11,000	Positive	10	D	250	None	None	37	Recovered
28	6 yr.	Positive	0 #	.....	....	..	Th‖	...	I. M.	None	19	Recovered

* D: sulfadiazine. † I. S.: intrathecal. ‡ I. M.: intramuscular. § P: sulfapyridine. # Puncture before admission. ‖ Th: sulfathiazole.

---

[17] Hoyne, A. L.; Brown, R. H., and Drucker, A. P.: Influenzal Meningitis Treated with Streptomycin: Report of Three Cases with Recovery, Arch. Pediat. 63: 559 (Nov.) 1946.

retractions of abdominal, intercostal and supraclavicular areas with each inspiratory effort. On palpation he was found to have pronounced edema about the glottis, and it was apparent that an intubation would not suffice. There was not sufficient time for laryngoscopic inspection. His condition was critical, and we performed a tracheotomy at once, which afforded immediate relief. Blood was obtained for culture, for, on the basis of past experience we surmised that he might be suffering from H. influenzae bacteremia. There was no stiffness of the neck, nor were there any neurologic signs to suggest the possibility of meningitis. Nevertheless, on the following day, although his temperature had fallen to 101 F. and his general condition appeared excellent, he was placed on streptomycin therapy before the report of the blood culture had been received. Twenty-four hours later there was a sharp rise in temperature, nuchal rigidity was present, and a lumbar puncture was made. The cell count of the spinal fluid was 5,760 polymorphonuclear cells per cubic millimeter. In the meantime the blood culture was reported positive for H. influenzae, and the smear and culture of the spinal fluid also proved to be positive. He made an excellent recovery.

Another interesting case was case 19. This patient was a girl aged 18 months who was sent to the County Contagious Hospital as probably having poliomyelitis. She had a temperature of 103.6 F. on admission, with a history of nine days of illness. There was no paralysis and scarcely more than a suspicion of nuchal rigidity. A lumbar puncture revealed 662 cells, nearly all lymphocytes, in the spinal fluid. The Pandy test was positive, and smear and culture of the spinal fluid were reported negative, as was also a blood culture. She continued to have pyrexia and became more and more irritable. Three days after admission a second spinal tap was made and the cell count was 666, and still mostly lymphocytes. At this time the spinal fluid sugar was 24 mg. per hundred cubic centimeters, in contrast to the original report of 18 mg. She had been receiving sulfadiazine because of possible pneumonia. Again smear and culture of the spinal fluid were reported negative. The child was not making good progress and fever continued, as well as an increasing degree of irritability. Therefore a third lumbar puncture was made; this was October 8, six days after her admission. On this third occasion there were many polymorphonuclear cells, but although no organisms were found on smear the spinal fluid culture was positive for H. influenzae. The child was treated with streptomycin on five occasions intrathecally in addition to intramuscular injections. The streptomycin given intrathecally was in four doses of 50,000 micrograms and one dose of 100,000 micrograms. The intramuscular injections consisted of 150,000 micrograms every three hours for twenty-seven days. The total period of hospitalization was forty-five days, and at the end of that time her recovery appeared to be complete without any complications. We believe that her progress would have been more rapid without intrathecal treatment.

In nearly all our cases the dosage of streptomycin intramuscularly consisted of 100,000 micrograms every three hours. The average number of days of streptomycin treatment was 5.9 at Municipal Contagious Disease Hospital, and at County Contagious Hospital 17.2. The latter figure, however, is misleading because 1 patient (no. 19) in whom a late diagnosis was made was treated for twenty-seven days before recovery. The average total dose for recovered patients at Municipal Hospital was 4.6 Gm., whereas the average at the County Hospital was 20.9 Gm. The latter figure is undoubtedly excessive. All but 2 of the patients received sulfadiazine; 1 had sulfapyridine, and 1 sulfathiazole. In nearly every case the initial dose of the sulfonamide compound was given intravenously. For the purpose of forestalling the possibility of a relapse the sulfonamide compound was not discontinued as a rule in less than three weeks from the beginning of treatment.

Although specific type anti-influenzal serum was given to 11 patients it is our opinion that this form of therapy is not necessary when the dosage of streptomycin and the sulfonamide drug is adequate. In fact, it seems probable that satisfactory recoveries may often be brought about by the intramuscular injection of streptomycin alone, just as may occur when patients are treated exclusively with sulfonamide drugs (cases 10, 15, 17, 20 and 22). Alexander, Leidy, Rake and Donovick[18] have reported 12 recoveries in which treatment was exclusively with streptomycin. However, in every one of these instances they gave streptomycin intrathecally as well as intramuscularly. We placed a high value on Alexander's serum prior to the availability of streptomycin, but always gave it intravenously and never injected anti-influenzal serum intrathecally. Alexander and co-workers,[15] in discussing the use of specific type anti-influenzal serum, commented on the fact that although the specific serum was injected intrathecally for several days positive cultures for the infecting organisms were still secured from the spinal fluid. Their statement is reminiscent of the days of intrathecal therapy for meningococcic meningitis. Considering the many disadvantages of serum therapy, not forgetting cost as well as the possibility of serum reactions, we believe that finally serum for influenzal meningitis will seldom be used when streptomycin is available.

SUMMARY

Twenty-eight consecutive cases of influenzal meningitis with 2 deaths, or a fatality of 7 per cent, are reported. The patient who died soon after hospitalization being excluded, the corrected fatality rate is 3.7 per cent for 27 patients.

Sixteen of the patients were at Municipal Contagious Disease Hospital and 12 at Cook County Contagious Disease Hospital. There was a single fatality in each group. One death occurred in a 7 week old infant who was also suffering from whooping cough and developed hydrocephalus. The other was a year old infant admitted to County Hospital in a moribund condition, who died within thirteen hours.

Eighteen of the 28 patients were treated with streptomycin. Twelve patients received streptomycin but no serum. Eleven patients were given streptomycin intramuscularly but had no intrathecal treatment; 10 of these had no serum therapy. Seven were given streptomycin intrathecally as well as intramuscularly, and among these occurred the two deaths. Five patients received serum but no streptomycin.

---

[18] Alexander, H. E.; Leidy, G.; Rake, G., and Donovick, R.: Meningitis Due to Hemophilus Influenzae, J. A. M. A. **132**: 434 (Oct. 26) 1946.

Six patients were treated with serum, streptomycin and a sulfonamide compound. Five patients were treated with a sulfonamide compound exclusively; the drug for all 5 of these was sulfadiazine, although in 2 instances the initial dose was sulfathiazole.

Fifteen of the patients each had only one lumbar puncture. One patient had no spinal tap. The average number of lumbar punctures for the recovered patients was 2.0.

Seventeen (85 per cent) of 20 patients had positive blood cultures. All patients with the exception of the one who had no spinal puncture had positive smears or cultures from the spinal fluid. In all 28 patients the organism was shown to be type B Hemophilus *influenzae*.

Every patient was given a sulfonamide compound. Sulfadiazine was used in 21 instances; sulfadiazine and sulfathiazole in 5, and in the 2 other cases sulfathiazole and sulfapyridine were used singly. None of the patients had any petechiae. There was only one relapse, which occurred in a serum-treated patient. The complications included deafness in 1 patient, hydrocephalus in 1, left hemiplegia in 1, left facial paralysis in 1, paresis of the left arm in 2 and serum sickness in 4.

CONCLUSION

In our series of 28 patients, 21 of the 26 who recovered received no intrathecal therapy. These results should be regarded as additional evidence that intraspinal treatment is not a necessity for the successful management of influenzal meningitis.

On the basis of a dozen years of experience in the treatment of meningitis without intrathecal therapy, it seems certain that recovery is more prompt and complications are fewer when intrathecal treatment is omitted. It may be repeated that the primary purpose for a lumbar puncture should be to establish a diagnosis. Frequent intrathecal taps are of no benefit to the patient. We believe that intrathecal therapy is contraindicated for Type B H. influenzae meningitis.

NOTE: Since completion of this paper 2 additional patients were admitted to Cook County Contagious Hospital in 1947, and both recovered. This makes 14 consecutive patients with influenzal meningitis at County hospital and 16 at Municipal hospital with 1 death in each group, or a fatality rate of 6.6 per cent for 30 patients.

3026 South California Avenue.

Nothing More Dramatic in Medicine.—Liver and liver extracts affect the stroma of erythrocytes only. This verified Whipple's idea expressed in 1922 that there is a scarcity of stroma-building material in pernicious anemia. With adequate liver therapy the blood of a patient about to die rapidly responds and returns completely to normal. The glossitis and other gastrointestinal symptoms disappear entirely. The neurologic symptoms become improved or do not progress; at times they disappear entirely. There is nothing more dramatic in medicine than the effect of liver therapy on a patient with pernicious anemia. Only the use of sulfa drugs and other antibiotics such as penicillin afford such brilliant results. It was found that a liver extract acted just as well as whole liver. Extracts have been improved until now these are almost perfect in their action. A monthly injection of a potent extract will keep the blood normal and prevent the development of a neurologic lesion. An extract of normal gastric mucosa has a similar action, as one would expect from Castle's discovery.—Haden, Russell L., M.D., Pernicious Anemia from Addison to Folic Acid, *Blood, The Journal of Hematology*, page 22, Jan[illegible]

PRACTICAL ASPECTS OF ALLERGIC RHINITIS

LEO H. CRIEP, M.D.
Pittsburgh

Every physician is familiar with the plight of the patient who seeks help because of recurring perennial nasal obstruction, accompanied with profuse thin watery nasal secretion, postnasal discharge, sneezing and loss of sense of taste and smell. Patients may be young or old. Children so afflicted are prone to experience itchiness of the nose and develop mannerisms such as sniffling, nose wrinkling and nose rubbing (fig. 1). The condition is frequently associated with bronchial asthma. One practitioner after another is consulted and then, often, a rhinologist, allergist or even a psychiatrist. The diagnosis may be hyperesthetic or vasomotor rhinitis. However, if certain criteria for allergic diagnosis are present, then the condition is referred to as allergic rhinitis. These criteria include the presence of a family history of allergy, a personal history of other allergic manifestations (asthma, hay fever, eczema), blood and nasal eosinophilia, a history of clinical sensitivity and response to the administration of antihistaminic drugs and epinephrine. Inspection of the nose reveals a characteristic bluish gray appearance and reversible bogginess and edema. The turbinates are swollen. The nasal cavities are reduced in size and are frequently obstructed by mucous polypi. Unfortunately, the diagnosis is not always made early. The patient himself may think that he is subject to

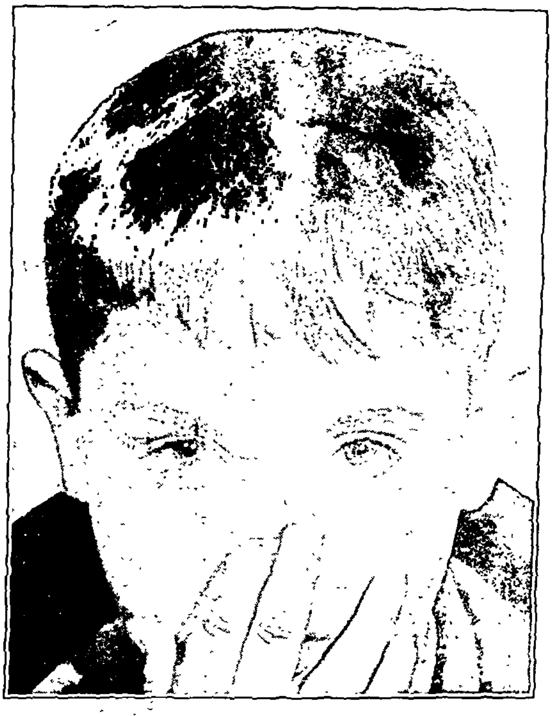


Fig. 1.—Nose rubbing as a mannerism in a child with allergic rhinitis. (From Criep, L. H.: Essentials of Allergy, Philadelphia, J. B. Lippincott Company, 1945.)

From the Division of Allergy, Department of Medicine, School of Medicine, University of Pittsburgh and the Montefiore Hospital, Pittsburgh.

Read before the Section on Miscellaneous Topics at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June [illegible] "recurrent colds" or chronic sinusitis. This latter diagnosis is often suggested because localized edema of the mucous membranes produces on transillumination and in roentgenograms of the sinuses transient shadows which are indistinguishable from those of hypertrophic and suppurative sinusitis.

DIFFERENTIAL DIAGNOSIS

Allergic rhinitis is easily differentiated from a common cold by the presence of the aforementioned criteria, by the absence of contagiousness and by its chronicity.

Chronic nasal and sinusal infection present none of the local characteristics of allergic involvement. The nasal mucous membrane in these instances is inflamed and red. Pus may be observed in the nasal cavity. The nasal smear contains a preponderance of polymorphonuclear leukocytes rather than eosinophils. Transillumination and roentgenograms show persistent opacities.

NORMAL FUNCTIONING

The nose is a functioning organ and not merely a passageway to convey air to the lungs. The inspired air must be cleaned, warmed and moistened properly before it is introduced into the delicate pulmonary alveoli. These functions are accomplished by the vibrissae of the nasal vestibule, by the nasal cilia, which constantly sweep toward the pharynx the blanket of mucus secreted by the mucosal glands, and, finally, by the vascular turbinates (fig. 2 and 3).

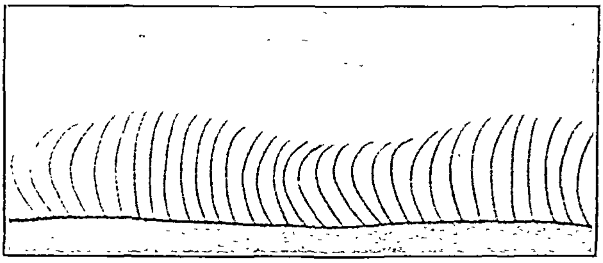


Fig. 2.—Ciliary beat. (Provided by Ciba Pharmaceutical Products, Inc.)

PATHOLOGIC FUNCTIONING

This normal functioning is altered as a result of allergic involvement. Local edema, hypertrophy and hyperplasia of the turbinates interfere with nasal drainage and ventilation (fig. 4 and 5). Normal nasal function is further affected if the cilia are injured by drugs, by chilling and by improperly humidified inspired air. Such damage renders the tissues more susceptible to infection. In young children the bony structure of the hard palate is also affected, producing the high arched palate, "Gothic arch," and dental deformities (fig. 6).

Under normal conditions the mucus secreted by the glands of the sinusal membrane is emptied through the ostiums into the nose. With the advent of allergic edema and increased activity of the mucous glands, this secretion becomes more gelatinous, and when expelled it falls in globular form into the nasopharynx, giving the patient the disagreeable sensation of postnasal "drip." Since the reaction is reversible, changes occur in the character and amount of mucus in the sinuses; the swollen and occluded ostiums do not function normally, and the air within the sinuses may become compressed or rarified. As a result of such fluctuations in air pressure, the patient may experience typical paroxysmal headache.

A discussion of the altered functioning responsible for nasal allergy would be incomplete without mention of the role played by the parasympathetic nervous system. This action, in all likelihood, is linked to the cholinergic effect of histamine or histamine-like substances, presumably released in persons with allergic disease by exposure to specific allergens. This release produces increased capillary dilatation and permeability, with resulting extravasation of fluid and edema of the mucous

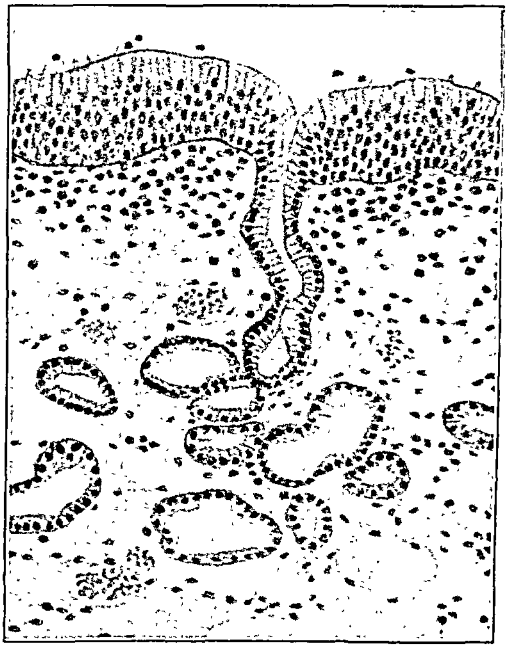


Fig. 3.—Normal nasal mucous membrane. (Provided by Ciba Pharmaceutical Products, Inc.)

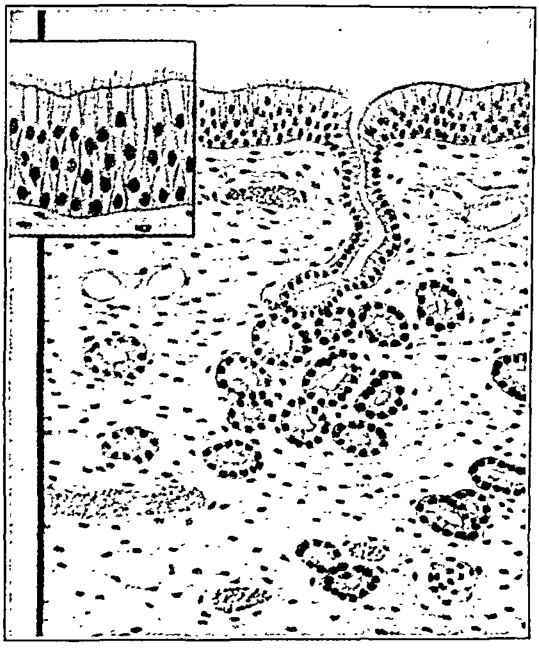


Fig. 4.—Allergic reaction in nasal mucous membrane. (Provided by Ciba Pharmaceutical Products, Inc.)

membranes. Since the central nervous system has a decided influence on the parasympathetic nervous system, it is obvious that emotional upsets wil profoundly affect the symptoms of allergic rhinitis.

PATHOLOGIC CHANGES

Certain pathologic changes occur as a result of altered nasal functioning. These include hypertrophy and hyperplasia of the connective tissue and epithelial cells, which assume the appearance of goblet cells. Pedunculation of the lining membrane produces polypoid degeneration. The polypi are of the mucous variety. The basement membrane is thickened. The cilia are destroyed. There occurs infiltration with lymphocytes, eosinophils and fibroblasts. Infection often supervenes.

CAUSATIVE FACTORS

Allergic rhinorrhea is affected by such endocrine factors as pregnancy and menstruation, by climatic conditions, by irritating fumes and chemicals, by emotional factors and by nasal obstruction and infection.

But the underlying causative factor in all these instances is exposure to a substance to which the patient is sensitive. This may be an inhalant, a food, drug, physical agent or bacterium. If the inhalant is a pollen, then the symptoms are seasonal and the conditicn is referred to as pollen allergy or hay fever. However, seasonal allergic rhinitis may also be produced by the spores of certain molds, particularly stem rust and Alternaria and Hormodendrum organisms. These spores prevail throughout the country, but more so in the central states; they are seen particularly in the spring, summer and early fall. Other frequent inhalant allergens are animal danders (horse dander, feathers, rabbit hair, cat hair, dog hair), orris root, wool, insecticide, cotton linters and house dust. Milk, eggs and wheat are important food allergens. Next in order are fish, nuts and some vegetables and fruits. There are many reports of nasal allergy due to the ingestion, injection or local nasal application of drugs. Among these must be mentioned coal tar and benzol derivatives (acetylsalicylic acid and phenyl salicylate), the halogens (iodides and bromides) and various other drugs. Topical agents of special interest are the sulfonamide drugs, penicillin and "argyrol" (a silver vitellin preparation). I have seen several patients with allergic disease who experience intense and prolonged nasal reactions from the local instillation of these drugs. "Argyrol," which is used so much by rhinologists, is not an infrequent offender. Patients receiving "argyrol" tampons often protest about the discomfort its application causes them; in many instances this discomfort is not recognized as a manifestation of an allergic state. Heat, sunlight and cold are physical agents to which some patients react with allergic nasal manifestations. Cold is of particular importance as a causative agent. Symptoms are commonly present in the morning as the patient steps out of bed. The sudden transition from the warm bed to the chilled air of the room produces nasal edema. This may be due either to allergy to cold or to reflex congestion of the nasal mucous membrane brought about because cooled air passing through the nasal chambers needs to be warmed. There are some who state the belief that nasal allergy may also result from sensitivity to the proteins of bacteria present in nasal infection.

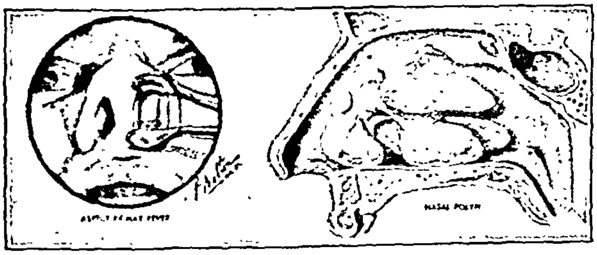


Fig. 5.—Acute and chronic nasal allergy. (Provided by Ciba Pharmaceutical Products, Inc.)

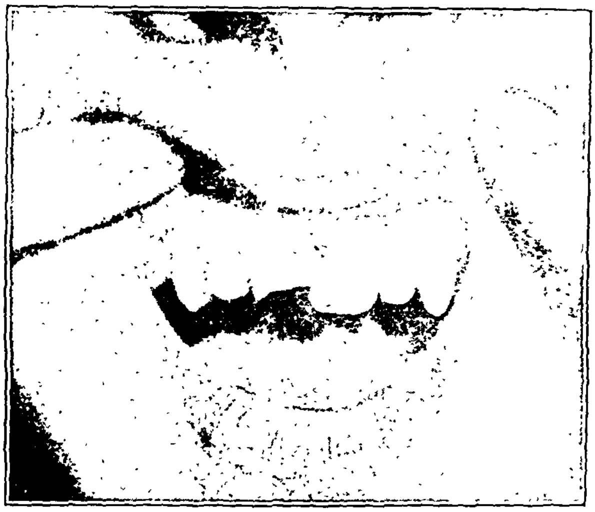


Fig. 6.—Dental deformities in allergic rhinitis.

ETIOLOGIC DIAGNOSES

The etiologic diagnosis establishes which of the aforementioned agents produce the patient's symptoms. It is made on the basis of a carefully taken history and special sensitization tests. The former often gives important diagnostic clues. The sensitization tests include cutaneous tests, ophthalmic tests and nasal or sniff tests. The uses and limitations of cutaneous tests (scratch and intradermal) cannot be discussed in this paper, except to mention that, if properly performed,

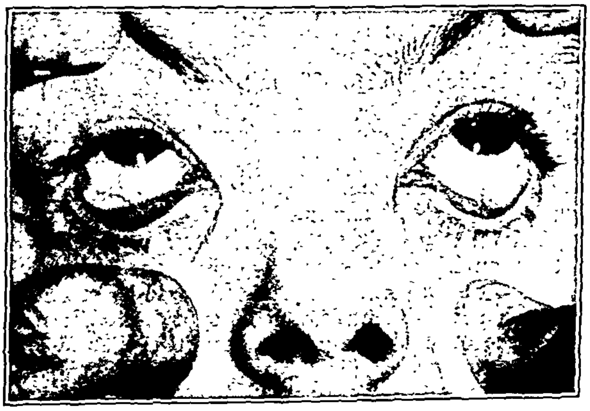


Fig. 7.—Positive reaction to an ophthalmic test in a patient with allergic rhinitis and conjunctivitis. (From Criep, L. H.: Essentials of Allergy, Philadelphia, J. B. Lippincott Company, 1945.)

with allergens which are biologically potent, and if critically interpreted, these tests form an important link in the chain of evidence which may unearth the cause of the allergy. The ophthalmic test (fig. 7) consists in the instillation of a drop of the suspected material in the conjunctival sac. A positive reaction is manifested by local itching, congestion and lacrimation. One may reproduce the clinical manifestations by having the patient sniff a few grains of the suspected substance. If foods are suspected of playing a causative role, the patient is given trial or elimination diets, diets which include only four or five foods. The effect on the patient's clinical condition of enlarging the diet by supplying additional foods is noted.

TREATMENT

Treatment is divided into specific allergic therapy (avoidance and hyposensitization), medicinal measures, attention to nasal infection (topical and surgical) and psychotherapy.

The patient is instructed to avoid allergic factors, to prepare and maintain dust-free rooms and to use allergen-proof pillow slips. A diet is given from which are eliminated the foods to which the patient is sensitive. Hyposensitization with increasing doses of autogenous extract of house dust or with extracts of fungi is undertaken. Irritating fumes (gasoline, paint) and noxious occupational factors are also avoided.

Medicinal treatment is intended to produce palliative relief. This includes the oral administration of 0.375 grain (24.4 mg.) of ephedrine and 0.167 grain (10.8 mg.) of phenobarbital every four hours when necessary. Antihistaminic drugs may be helpful. These include several preparations which vary in effectiveness as well as frequency of undesirable side effects with different patients. The following agents may bring symptomatic relief: "neoantergan," 50 mg. every four hours, and "thephorin" (2-methyl-9-phenyl-1, 3, 4, 9 tetrahydroindeno [2.1-c] pyridine), 50 mg. every four hours. Some patients experience sleeplessness from its administration. "Thenylene" (N,N′-dimethyl-N′-[alpha pyridyl]-N′-[alpha thenyl] ethylenediamine), 50 to 100 mg. every four hours, is an effective histamine antagonist, producing occasional drowsiness. "Benadryl hydrochloride" (beta-dimethylamino-ethyl benzohydryl ether hydrochloride), 25 to 50 mg. and "pyribenzamine hydrochloride" (pyridyl N′-benzyl N-dimethyl ethylenediamine), 25 to 50 mg. every four hours, may also be prescribed. If side effects, such as drowsiness, palpitation, nausea and vomiting, occur, treatment with these drugs should be discontinued. Local vasoconstrictors, most of which contain ephedrine or epinephrine derivatives, should be used sparingly, for it has been established that their continued use is followed by secondary congestion and intensification of symptoms. If nasal drops are ordered, the patient should be instructed in their proper use, employing the Proetz position.

Local nasal pathologic changes and mechanical obstructions, such as deflected septums, polypi and hyperplastic tissue, must be removed in order to restore nasal function, for this not only affords symptomatic relief but helps prevent nasal and sinusal infection, a frequent complication of untreated and unrecognized nasal allergy. Rhinologic treatment should always be conservative at first, especially if there is a decided allergic factor.

Cauterization with trichloracetic acid and electrocoagulation are procedures which have afforded temporary relief at times. Ionization of the nasal membrane is not only not beneficial but harmful. Roentgen ray therapy to the nose is of doubtful value. Radon or radium therapy or roentgen therapy to the nasopharynx is helpful in the presence of associated lymphoid hyperplasia and infection in that region. Tonsillectomy is not specifically indicated.

It is obvious, therefore, that good therapeutic results are predicated on the closest possible cooperation between allergists and rhinologists, with the realization that a considerable percentage of patients suffering with nasal symptoms are allergic and that failure to recognize early and treat properly the allergic state in these patients accounts for many therapeutic failures. On the other hand, many patients suffering with allergic rhinitis will fare better if given the benefit of rhinologic attention.

Allergic rhinitis of long standing produces profound emotional changes: Appetite is impaired; losses in weight occur; sleep is disturbed; work and efficiency are interfered with, and the patient is not well. It is equally true that emotional upheavals frequently increase the severity of the nasal symptoms. Hence, there is necessity for proper evaluation and understanding of allergic patients as human beings.

Allergic and rhinologic attention, coupled with psychotherapeutic measures, will therefore increase the number of satisfactory therapeutic results obtained in patients with allergic rhinitis.

1004 May Building.

ABSTRACT OF DISCUSSION

Dr. Theodore L. Squier, Milwaukee: Allergic rhinitis frequently is the precursor of asthma, as stated by Dr. Criep. Early differentiation of atopic from infectious rhinitis, followed by suitable treatment, can prevent the development of this incapacitating complication in a large number of patients. Accurate diagnosis, therefore, is essential. The value of a carefully taken history cannot be overstressed. Although the limitations of cutaneous testing were not especially emphasized, the need for confirmatory evidence by clinical trial or observed reaction was suggested. Cutaneous tests, subject at best to many inadequacies and technical errors, must always be correlated with the history. Only then can this valuable diagnostic procedure give reliable information. When the nostrils of patients with allergic rhinitis are tightly occluded, as if with a clothespin, emotional upsets are understandable. Violent snorting and blowing is frequent, although patients recognize that the resultant mechanical irritation serves only to increase the discomfort. In such circumstances physicians are tempted to overemphasize psychic factors and overlook the underlying somatic reactions actually responsible for symptoms. Nose drops of various kinds, prescribed for temporary relief, are used with increasing frequency because of the momentary relief afforded. Dr. Criep spoke of the prolonged nasal reactions from local medication which are sometimes observed. Repeatedly, I have seen patients in whom mild seasonal allergic rhinitis persisted long after contact with the specific causative agent had ceased, because of the continued use of nose drops. Occasionally hypersensitivity to one of the chemical constituents of the nose drops is responsible. More often there is only mechanical irritation, with consequent damage to the nasal mucosa, which then appears pale and waterlogged. The appearance of the overmedicated nose is indistinguishable from that during acute allergic episodes. Such patients will not obtain symptomatic relief until nose drops are discarded and local irritation is ended.

FUNDAMENTALS OF PHYSICAL MEDICINE OF INTEREST TO GENERAL PRACTITIONERS

STEVEN M. HORVATH, M.S., Ph.D.
Philadelphia

Adequate and successful use of physical agents can be expected only if there is understanding of the basic physiologic concepts underlying their use and application. It would be impossible to discuss here the basis for all of the modes of treatment employed in physical medicine. Therefore, this paper is being limited and is designed primarily to present some of the information that has been and is being accumulated in experimental work.

The agent most commonly employed in physical medicine is heat. Despite wide application of heat in the treatment of many conditions, its physiologic effects are poorly understood. Two factors must always be considered in heat therapy: (*a*) the amount of heat successfully applied to the tissues, i. e., the resultant of heat input and heat loss, and (*b*) the extra amount of heat produced in the tissues as a consequence of oxidative processes which have been accelerated by the applied heat. Too often these complementary phenomena have been neglected in the analysis of heat therapy.

Heating by conduction is the commonest method. There is an exchange of molecular energy from the warmer object to the cooler, which is achieved only by contact. Since conductive heating is frequently employed in home treatments, the superiority of paraffin in producing prolonged hyperemia is worthy of mention.[1]

The so-called convective methods, in which hot air or hot water is employed, are also essentially *conductive heating, as are radiant energy* sources in which the far infra red range (wavelengths of greater than 1,500 millimicrons) is employed. With radiant energy in the near infra-red zone, slightly deeper heating may result, since some of the energy is transmitted through the skin to the subcutaneous levels, where it is absorbed more efficiently.

In all of these methods, heating is relatively slow and, consequently, any real change in temperature can be achieved only after a period of time. Depth heating is produced only by slow conduction of heat from the surface to the deeper tissue layers.

None of these methods are really safe when used on patients suffering from impaired circulation. Ischemic limbs do not tolerate high temperatures. Heat cradles with thermostatically controlled temperatures of 85 to 90 F. have been advocated, but even here tissue metabolism may be accelerated to a level with which the damaged vascular bed cannot always cope and injury may result. Vasodilatation can be produced by indirect means in an extremity without greatly accelerating metabolism, that is, reflex vasodilatation produced *when some* other extremity or part of the body is heated. Intact sympathetic innervation of the part is necessary for this mode of heat therapy to be effective. Direct application of heat when there is obstruction of venous circulation is also dangerous. Here the arterial pathways can supply the demand for additional blood, but the poor venous return does not allow for efficient cooling and dissipation of heat, and, consequently, not only may the tissues be heated to an undesirably high level but considerable edema may develop.

The most efficient methods of heating the deep tissue occur as a consequence of the conversion of high frequency electrical currents into heat. To be most effective, this conversion must take place in the vascular tissues, where body heat is usually being produced. The high frequency currents used are alternating currents having frequencies greater than those frequencies which elicit a neuromuscular response. The term "short wave diathermy" is somewhat misleading, since it suggests that the patient is treated with radiation, whereas, in actuality, the patient is made part of a high frequency circuit. These currents can be applied so as to produce actual destruction of tissue. Only those applications which produce no visible destruction of tissue are considered medical. However, rises in temperature can be obtained which, while resulting in no visible destruction, do produce functional impairment, as manifested by aggravation of pain, increase in edema and other symptoms of overheating. Obviously, it is important to be able to treat in such a manner as to prevent the occurrence of these secondary effects.

The development of heat in tissues by short wave diathermy can be accomplished with either a condenser field or an induction field. Wavelength plays a less important role in heating than the power output of the apparatus, the energy delivered to the patient and the technic employed. For employment of the condenser field, three types of applicators are available: (*a*) the pad electrode, which is not effective for deep heating, producing only superficial effects, and, therefore, is not recommended, (*b*) the cuff electrode, which does not have universal application; hence, hot spots and some excessive surface heating are likely to develop, and (*c*) the air-spaced electrode, the best of the three. Since this method of heating depends on the specific conductivity of the electrolyte in the field, a certain amount of differential heating is bound to result. It has been shown that in the condenser field the power absorption is greater in fat than in other tissues, and, consequently, overheating can result. Fortunately, the efficiency of the blood stream in dissipating heat is such that there is a tendency to equalize temperatures throughout the area and so prevent such specific heating.

The heating of tissue by the use of induction is preferable, since it has more desirable heating characteristics, it is more adaptable to the anatomic configurations and power input into the tissues can be achieved more effectively. This field generates heat in an electrolyte in direct proportion to the conductivity of the electrolyte; it produces heat dominantly in vascular tissue where *it is normally produced, and it exhibits* little specific differential heating.

The intensity of the magnetic field within the coil is at a maximum immediately adjacent to the coil. Therefore, if the coil is wrapped snugly around the part

---

From the Center for Instruction and Research in Physical Medicine, University of Pennsylvania.

Read in the Section on Miscellaneous Topics at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1947.

[1] Martin, G. M.; Roth, G. M.; Elkins, E. C., and Krusen, F. H.: Arch. Phys. Med. **27**: 665, 1946.

treated, heating will be produced faster in the tissues closer to the coil than in the deeper tissues. This will lead to excessive heating of the skin, which must be avoided. In order to produce more heat in the deep tissue, spacing between coil and tissue must be provided. A layer of absorbent toweling, approximately 10 per cent of the diameter of the coil, is adequate and assures the maximum ratio of depth dose to skin dose. It is important in this respect to recall that a reduction in the flow of blood of around 10 per cent can result from the application of pressure to the limbs of as little as 10 mm. of mercury.[2] Careful application of apparatus is necessary to prevent this effect.

Under ordinary conditions of application of heat, vasodilatation may be brought about through the axon reflex mechanism as a consequence of thermal stimulation of sensory receptors. However, heat may also stimulate other cutaneous receptors which reflexly induce vasoconstriction and reduction of the flow of blood. The possibility that one or the other of these antagonistic factors may become dominant must be kept in mind. Results in recent experimental work on the rate of the flow of blood in animals being treated with short wave diathermy make it necessary that previous impressions of the mechanism of deep heating be carefully reviewed. In one set of experiments, Mart and Miller[3] measured the rate of the flow of blood through the coronary vessels before, during and after short wave diathermy over the heart and observed no significant changes in the flow of blood. Subsequently, a group of investigators at Iowa State Medical School[4] treated the hind limbs of dogs with diathermy and observed the femoral arterial inflow into the limb to be reduced. They extended this study to a comparison of denervated and nondenervated limbs and noted similar reductions, with slightly higher rises in temperature in denervated limbs. These results suggest that a portion of the deep-heating effects of short wave diathermy are a consequence of reduced flow of blood through heated tissues. Is this reduced flow a primary or a secondary effect?

It is well known that a rise in tissue temperature will increase local circulation, raise capillary pressure and increase tissue fluid exchange and lymphatic drainage. However, if for any cause tissue fluid accumulates, the resultant pressure on the venous channels will interfere with general circulation. The presence of frank edema may not be necessary for this effect to be produced, since edema is not necessarily detected until a collection of approximately 8 milliliters of fluid per hundred cubic centimeters of tissue has occurred.[5] Such a situation is not without parallel, since the possible presence of low grade edema has been suggested to account for the poor results following local short wave diathermy in patients suffering from chronic arthritis.

The decided increase in implantation of metals by surgical means has revived discussion of the potential dangers of short wave therapy in the postoperative treatment of patients who have had operations of this type. Presumably, injury to the tissues contiguous to the metal would result because of distortion or concentration of the short wave field at the implant. This problem has been investigated recently by two groups of investigators.[6] In general, it appears that, if circulation is not impaired, short wave diathermy, with the usual precautions, can be safely applied to areas where surgical metals are situated in the deep tissues. However, caution must still be exercised, since overheating of tissues may occur around metallic parts located on or near the surface.

The subject of short wave diathermy cannot be closed without a consideration of dosage. At the present time there is no simple method of estimating the amount of energy absorbed by any single patient. As a consequence, dependence is placed on the most empiric procedure possible, that of using the patient's skin tolerance as the guide to the final dosage to be employed. In patients with impaired thermal sense or with peripheral vascular disease, burns may result. This is of special importance in aged patients, who frequently have lessened cutaneous sensibility.

During the past ten to fifteen years, there has been an active search, particularly by Dr. Frank H. Krusen of the Mayo Clinic, for sources of electromagnetic waves with much shorter lengths than those now commonly employed in so-called short wave diathermy. In the latter method, wavelengths of 21.95, 10.98 and 7.32 M. are available in contrast to the newest band of 12 cm. or 2,400 to 2,500 megacycles per second now allocated to physical medicine by the Federal Communications Commission. Radio frequency wavelengths of a few centimeters have a number of interesting properties which might make them of particular value in this field of specialization. Microwaves, so-called, have optical properties. They can be reflected, refracted and diffracted. They can be focused with a suitable metal lens into sharp beams. Furthermore, they may be selectively absorbed. A new field of research, called "microwave spectroscopy," gives promise of furnishing valuable information on molecular structure. Oxygen and water molecules (in gaseous form) absorb particular microwave frequencies. Whether or not the various biologic mediums will absorb microwaves selectively is not yet known. It has been shown that penetration of fat is only slightly less favorable than penetration in muscle tissue.[7] This is in contrast to the greater absorption by fat of 11 M. energy. No toweling is needed for spacing, and the subject is not tied down to the apparatus, as with short wave diathermy.

Most physicians have heard of the employment of microwaves in "radar," in which short radio frequency waves are discharged in bursts as a pulse-echo system. This type of energy is not feasible for therapeutic purposes, and continuously emitted energy is preferred. A cavity magnetron which generates continuous waves is now available. An indication of the potential superiority of waves of 12 cm. for therapeutic purposes is pointed out in a report from the Radiation Laboratory at the Massachusetts Institute of Technology. It was observed that the absorption factor of water at 100 F.

---

[2] Halperin, M. H.; Friedland, C. K., and Wilkins, R. W.: Federation Proc. **6**: 121, 1947.

[3] Mart, J. A., and Miller, J. R.: Am. Heart J. **29**: 390, 1945.

[4] Kemp, C. R.; Paul, W. D., and Hines, H. M.: Federation Proc. **6**: 141, 1947.

[5] Coulter, J. S.: Medical Physics, Chicago, the Year Book Publishers, Inc., 1944, pp. 1043-1054.

[6] Etter, H. S.; Pudenz, R. H., and Gersh, I.: Arch. Phys. Med. **28**: 334, 1947. Lion, K.: Arch. Phys. Med. **28**: 345, 1947.

[7] Pätzold, J.: Radiology **30**: 661, 1938.

for microwaves having a frequency of 2.450 megacycles per second was approximately seven thousand times that for radio waves having a frequency of 27 megacycles per second. The latter frequency is commonly used in short wave diathermy.

Studies have just been begun on evaluation of the usefulness of centimeter waves. Several authors have reported that exposure to radar radiations has no effect on personnel.[8] Since these investigations were concerned with exposure to radar pulses—brief, rapid bursts of energy—they were of value only in dispelling fears of radar personnel regarding possible injury. Results of exposure to continuous microwave energy have just recently been presented in a preliminary report by Krusen and his associates.[9] Although they used equipment which produced continuous microwave energy at a frequency of 3,000 megacycles per second (10 cm.) and used only a single type of applicator, the general conclusions they have made will in all probability be applicable to a wave of 12 cm.

A number of investigators, such as Hollmann in Germany[10] and Hemingway and Stenstrom in this country[11] have theoretically discussed the use of centimeter wavelengths from the standpoint that they could be focused so as to cause heating of deep tissues without excessive heating of the skin. Krusen and his associates[9] have now shown that temperature of deep tissue can be raised by microwaves. Measurements were made of cutaneous, subcutaneous, superficial muscle and deep muscle temperatures following application of microwave energy. Unfortunately, as was the case in studying the effects of the usual short wave diathermy technic, it was impossible to measure temperatures during exposure to the high frequency field. An energy output of approximately 65 watts for a period of twenty minutes raised cutaneous, subcutaneous and muscle temperatures an average of 3 to 5 degrees Centigrade. This means that even with similar rises in temperature of all tissues, the final temperature of deep tissue is higher than that of subcutaneous or cutaneous tissue. Furthermore, the rate and degree of cooling is always more rapid in superficial tissues than in deeper ones. The flow of blood, as measured in the femoral vein, was approximately doubled as a consequence of the treatment. This is in sharp contrast to the results previously mentioned, wherein reductions in the flow of blood were observed following short wave diathermy. Although extension to human beings of the results obtained from experiments with animals is always dangerous, heating with microwaves offers promise of considerable usefulness in the practice of physical medicine. Experimentation in progress will permit reports at a later date regarding the clinical applications of this new tool.

The effects of heat on human beings are complex, and it is impossible in the present state of knowledge to do more than suggest the potentialities of heat therapy. Extension of knowledge will continue with the continued development of the scientific approach to physical medicine.

There is another mode of treatment available to general practitioners that has not had such extensive exploitation as the use of heat. The introduction or exchange of ions by means of the direct current within the tissues has not been popular in this country, but has been extensively employed in Europe, especially by the French.[12] Iontophoresis may have wide potential application in general practice.

The introduction of medicaments into the body by common ion transfer has distinct theoretic limitations. The low velocity of the ions and the low potential at which they are introduced precludes penetration deeper than the superficial layers of the skin. Furthermore, the quantity of any drug that can be introduced is certainly infinitesimal. Yet, despite these limitations, both local and systemic responses have been obtained.

The systemic response is probably due to diffusion of the drug into the circulating blood. A number of foreign investigators have expressed the belief that the physical characteristics of the current produce an effect on the colloids of the organism and so may account for some of the beneficial effects of iontophoresis.

Over thirty different anions and cations have been employed to treat as large a number of clinical entities. With some ions local effects predominate, as in the case of cocaine, which produces anesthesia and edema of the skin primarily at the electrodes; with others, systemic effects appear before any local reaction occurs, as in the case of strychnine, and in still others, such as histamine, "mecholyl chloride" (acetyl-β-methylcholine chloride) and epinephrine, both local and systemic reactions can be produced. Common ion transfer of the salts of the metals appears, on the best of available evidence, to have primarily local effects.

Iontophoresis has been employed with apparent advantage in a number of peripheral vascular disorders and dermatologic conditions. Iontophoresis with "mecholyl chloride" or histamine produces relief from pain, swelling and stiffness, but does not increase function of the joints, strength of muscle or relief from fatigue. The main positive effects are in superficial dilatation of the capillary bed, with resultant intensive hyperemia. Copper has been used effectively in treatment of so-called "athlete's foot." Unfortunately, there is no completely satisfactory scientific evaluation of the efficacy of "common ion transfer," and the enthusiastic clinical reports have, in general, not been supported by statistical evidence. This mode of treatment has been of value in selected cases, but until more is known of the basic mechanism, this method cannot be considered to have broad general application to clinical conditions.

COMMENT

It was not my purpose in this paper to either praise or decry any mode of treatment, but to bring to attention the need for objective evaluation of the tools of physical medicine. It is gratifying not only to observe the progress that has been made in this respect but also to note the development of teams of trained investigators who are attacking the fundamental problems of physical medicine. It is only through the unequivocal establishment of the principles underlying the practice of physical medicine that treatment can be properly prescribed and the patient's progress adequately evaluated.

---

[8] Daily, L. E.: U. S. Nav. M. Bull. **41**: 1052, 1943. Follis, R. H., Jr.: Am. J. Physiol. **147**: 281, 1946.

[9] Krusen, F. H.; Herrick, L. F.; Leden, U., and Wakim, K. G.: Proc. Staff Meet., Mayo Clin. **22**: 209, 1947.

[10] Hollmann, H. E.: Strahlentherapie **64**: 691, 1939.

[11] Hemingway, A., and Stenstrom, K. W.: Handbook of Physical Therapy, ed. 3, Chicago, American Medical Association, 1939, pp. 241-229.

[12] Abramowitsh, D., and Neoussikine, B.: Treatment by Common Ion Transfer, New York, Grune & Stratton, Inc., 1946.

EXPERIENCES WITH TETRAETHYLAMMONIUM CHLORIDE IN HYPERTENSION

R. H. LYONS, M.D.
Syracuse, N. Y.
S. W. HOOBLER, M.D.
R. B. NELIGH, M.D.
G. K. MOE, M.D.
and
M. M. PEET, M.D.
Ann Arbor, Mich.

Tetraethylammonium chloride is a quaternary ammonium compound which blocks the transmission of nervous impulses across autonomic ganglions. Acheson and Moe[1] first demonstrated this ganglionic site of action in dogs and cats, using as test responses the reactions of the blood pressure, heart rate and nictitating membrane. They demonstrated that when the compound is injected intravenously it produces a prompt fall in arterial pressure in animals in which the arterial pressure is elevated from the increase in sympathetic tone of barbiturate anesthesia. After section of the cervical cord in such animals the sympathetic tone is abolished, and the drug then fails to produce further change in pressure. With restoration of the pressure and vascular tone by stimulation of the distal segment of the sectioned cervical cord the administration of the drug again produces a fall in pressure to the same level as that found in the absence of sympathetic tone. Acheson and Moe also demonstrated that there is no local action of the drug on blood vessels since intra-arterial injection fails to produce changes in blood flow. The drug does not prevent the vasopressor activity of epinephrine or angiotonin, which act directly on the arterioles, so that hypertension induced by large infusions of such substances is not altered in the experimental animal.[2]

EFFECT OF AUTONOMIC NERVOUS SYSTEM BLOCKADE IN MAN

In man a similar ganglionic blockade of both the parasympathetic and sympathetic nervous systems may be produced by the intravenous or intramuscular injections of tetraethylammonium chloride.[3] The effects of such a blockade have already been described,[4] and consist principally of decrease in blood pressure, with the development of postural hypotension, tachycardia, increase in blood flow in the extremities resulting in a rise in cutaneous temperature,[5] cessation of sweating, a dry mouth, cessation of gastrointestinal movement and a decrease in gastric secretion,[6] loss of bladder tone,[7] loss of ocular accommodation with partial pupillary dilatation and occasionally ptosis of the eyelids.

DOSE OF TETRAETHYLAMMONIUM CHLORIDE IN MAN

The decrease in blood pressure is usually rather transient following an intravenous injection, and the duration of the effect is dependent in part on the amount administered. In order to obtain measurable dilatation of the peripheral vascular bed, 500 mg. of the drug should be administered intravenously. The effects of smaller doses may not be as complete. In general, 300 to 500 mg. (6 to 10 mg. per kilogram of body weight) has been injected intravenously in the studies of the change in blood pressure and at least 500 mg. (between 7 and 10 mg. per kilogram of body weight) in the studies of the changes in peripheral blood flow. The intramuscular dose should probably not exceed 20 mg. per kilogram of body weight. Oral administration is not satisfactory because of poor absorption from the gastrointestinal tract.

MECHANISM OF THE FALL IN ARTERIAL PRESSURE WITH TETRAETHYLAMMONIUM CHLORIDE

Arterial pressure is dependent on the volume of blood in the arterial system and the character of the volume elasticity of the arterial walls. The volume of blood in the arteries is dependent on the cardiac output, which is a function of the heart rate and stroke volume, as well as the rate of flow out of the arterial system through the arterioles. Small changes in the cardiac output will produce relatively little change in the arterial pressure because of the compensatory influence of the reflex sympathetic vasoconstrictor tone.

The rate of flow out of the arterial system at a given head of pressure is dependent on the degree of dilatation or constriction of the arterioles. This is controlled normally by reflex sympathetic vasoconstrictor tone but may also be affected by structural changes in the walls of the vessels and by humoral substances, such as epinephrine or angiotonin, acting directly on them. The decrease in arterial pressure usually noted after injections of tetraethylammonium chloride must be explained either as a result of a diminution of cardiac output or a decrease in sympathetic vasoconstrictor tone resulting in a greater outflow of blood from the arteries. It has been found that after the administration of the drug there is either no change in cardiac output or more commonly an increase in the output in both normal and hypertensive subjects probably associated with the increase in heart rate from the parasympathetic blockade.[8] Therefore, in the presence of an augmented cardiac output, the fall in arterial pressure must be explained on the basis of an increased outflow of blood from the arteries because of the diminution in arteriolar constriction controlled by the sympathetic nervous system. The extent of the fall in arterial pressure at a given initial pressure must therefore reflect in part the role of the sympathetic

---

From the Departments of Medicine, Pharmacology and Surgery, University Hospital, University of Michigan Medical School.

Supported by the Life Insurance Medical Research Fund, the United States Public Health Service, and Parke, Davis & Company.

Read before the Section on Internal Medicine at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

[1] Acheson, G. H., and Moe, G. K.: Some Effects of Tetraethylammonium on the Mammalian Heart, J. Pharmacol. & Exper. Therap. **84:** 189, 1945; The Action of Tetraethylammonium on the Mammalian Circulation, ibid. **87:** 220, 1946.

[2] Moe, G. K.; Rennick, B. R.; Hoobler, S. W.; Neligh, R. B., and Lyons, R. H.: The Evaluation of Vasomotor Tone in Animals and Man by Means of the Tetraethylammonium Ion, Proc. Central Soc. Clin. Research. **19:** 5, 1946.

[3] This was obtained as "etamon" through Dr. E. C. Vonder Heide, Department of Clinical Investigation, Parke Davis & Company, Detroit.

[4] Lyons, R. H.; Moe, G. K.; Neligh, R. B.; Hoobler, S. W.; Campbell, K. N.; Berry, R. L., and Rennick, B. R.: The Effects of Blockade of the Autonomic Ganglia in Man. Univ. Hosp. Bull., Ann Arbor, **12:** 33, 1946. Lyons, R. H.; Campbell, K. N.; Moe, G. K.; Neligh, R. B.; Hoobler, S. W.; Berry, R. L., and Rennick, B. R.: The Effects of Blockade of the Autonomic Ganglia in Man with Tetraethylammonium, Am. J. M. Sc. **213:** 315, 1947.

[5] Hoobler, S. W.; Neligh, R. B.; Moe, G. K.; Malton, S. D.; Cohen, S.; Ballantine, H. T., Jr., and Lyons, R. H.: The Extent of Vasodilatation Induced in Different Vascular Beds After Systemic Autonomic Blockade with Tetraethylammonium, Proc. Am. Federation Clin. Research, to be published.

[6] Neligh, R. B.; Holt, J.; Lyons, R. H.; Moe, G. K., and Hoobler, S. W.: The Effect of Blockade of Autonomic Ganglia by Tetraethylammonium on the Gastrointestinal Tract in Man, Proc. Am. Federation Clin. Research **3:** 20, 1947.

[7] Nesbit, R. M.; Lapides, J.; Volk, W. W.; Sutler, M. R.; Berry, R. L.; Lyons, R. H.; Campbell, K. N., and Moe, G. K.: The Effects of Blockade of the Autonomic Ganglia on the Urinary Bladder in Man, J. Urol. **57:** 242, 1947.

[8] Nouse, D. C.; Manry, C. H.; Hoobler, S. W.; Neligh, R. B.; Moe, G. K., and Lyons, R. H.: Changes in the Cardiac Output, Peripheral Resistance, and Heart Work After Tetraethylammonium and Atropine, Proc. Am. Federation Clin. Research, to be published.

vasoconstrictor tone in the maintenance of the pressure at that level. On the other hand, if the same degree of arteriolar dilatation occurred at different pressure levels, a greater decrease in pressure might be expected in the arteries under the higher initial pressure and therefore would not necessarily indicate that these vessels were under a greater sympathetic tone.

It is unjustified to assume, however, that the decrease in pressure noted after injections of tetraethylammonium chloride will give an absolute measurement of the role of reflex vasoconstriction in maintaining the level of the arterial pressure. The change in heart rate, if great, may tend to prevent as pronounced a fall in diastolic pressure as might be experienced from vasodilatation alone. It is probable, however, that the change in the cardiac output resulting from the tachycardia or the tachycardia itself are minor factors in altering the arterial pressure in the majority of the cases, for the average increase in rate is only 19 beats per minute.

In animal experiments the drug appears to produce a complete blockade of reflex vasoconstrictor tone. Observations on peripheral blood flow in man would suggest that in the doses used the blockade is not complete. There is a somewhat greater increase in peripheral blood flow in the feet after lumbar paravertebral block than after injection of tetraethylammonium chloride.[5]

While these limitations are recognized, they do not prevent the use of the drug in the evaluation of the role of sympathetic vasoconstrictor tone in the maintenance of arterial pressure. It is likely that in most instances changes in the diastolic pressure will parallel the changes in sympathetic tone produced by the drug.

THE EXTENT OF FALL IN BLOOD PRESSURE

A study of the role of the reflex sympathetic vasoconstrictor tone in the maintenance of arterial pressure at different initial levels of pressure has been made on 437 patients. The drug has been administered intravenously in doses of 300 to 500 mg. to patients in whom determinations of blood pressure were made for several minutes before the injection and continued every thirty to sixty seconds after the injection for fifteen to thirty minutes. In general the pressure is diminished in the majority of the cases and remains depressed for five to fifteen minutes. Evidence of diminished sympathetic tone may be present for twenty to forty minutes after an injection. Postural hypotension and increased peripheral blood flow persist after the arterial pressure has returned to its initial level. With the tachycardia resulting from diminished vagal tone there is a somewhat greater fall in the systolic pressure than in the diastolic pressure. Changes in the diastolic pressure, therefore, have been used to indicate the alterations in the level of the pressure produced as a result of the drug.

The extent of the decrease in pressure is largely dependent on the initial elevation of pressure (chart 1). Normal subjects with low initial diastolic pressures uncommonly experience a significant decrease in pressure after injection of the drug. In fact, there is in some subjects a slight rise in diastolic pressure. Thirty-five per cent of 82 persons with initial diastolic pressures below 80 had no change or a slight increase in diastolic pressure after receiving tetraethylammonium chloride. These were in general healthy subjects who were volunteers for the observations. Between 40 and 50 per cent of the patients studied with normal initial diastolic pressures failed to have a fall in pressure of as much as 10 per cent of the initial level. It would seem likely that in this group sympathetic vasoconstrictor tone played only a small role in the maintenance of arterial pressure. Seventeen patients with low diastolic pressures, however, experienced a 20 per cent or greater decrease in pressure. With few exceptions these were patients with hyperreactive vascular responses or other vascular abnormalities and might be thought to have a greater degree of vasoconstrictor tone.

Of the 91 patients with initial diastolic pressures between 90 and 109 mm. of mercury there was a greater average fall in pressure after administration of tetraethylammonium chloride. Only 24 per cent of the patients failed to have at least a 10 per cent decrease in diastolic pressure.

In the 228 hypertensive patients with initial diastolic pressures above 110, the drug produced progressively greater mean decreases in pressure with higher initial diastolic pressures. Only 16 per cent of these persons failed to have more than a 10 per cent decrease in pressure after the injection. It would seem likely that in these patients the blood pressure was maintained with less reflex sympathetic vasoconstrictor tone than in those patients who had greater decreases in pressure. On examination of the clinical records of the 37 patients, local angiospasm of the retinal vessels was less commonly found; there was a greater incidence of retinal arteriosclerosis, cardiac enlargement and impaired renal excretory function or nephritis than in the group that had larger decreases in pressure.

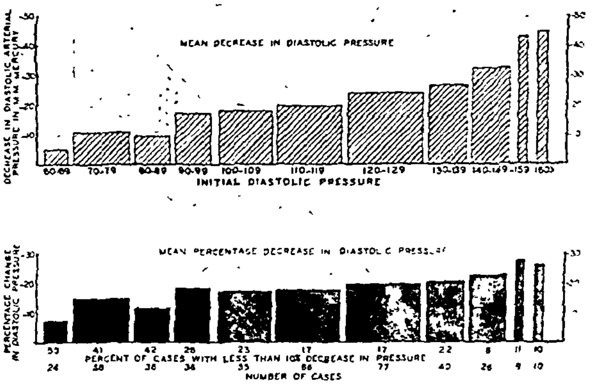


Chart 1.—Mean decrease in diastolic pressure in millimeters of mercury experienced in 437 patients who received 300 to 500 mg. of tetraethylammonium chloride intravenously. The width of each column expresses the number of cases arranged in groups according to the initial diastolic pressure. The lower solid black columns represent the mean percentage change from the initial diastolic pressure after administration of tetraethylammonium chloride.

It is apparent from chart 1 that the blockade of sympathetic tone produced by the drug resulted in progressively greater mean decreases in diastolic pressure from a 4 mm. fall at an initial diastolic pressure between 60 and 69 to a 44 mm. fall when the initial pressure was above 160 mm. of mercury. The average percentage change in diastolic pressure is greater at pressures above 90 and increases slightly but progressively at higher levels. This suggests that there is some increase in sympathetic tone in the hypertensive state, but it is not proportionately much greater at higher pressure levels. There were, however, large individual variations in the response to the drug which would suggest that in some patients the sympathetic vasoconstrictor tone was of more importance in maintaining the pressure, while in others it played a small role and the elevated pressure was maintained by other causes. In a small number of patients with high diastolic pressures, the fall in pressure was so great that it was followed by a momentary state of collapse and the clinical appearance suggestive of cerebral anoxia. A 300 to 500 mg. injection of tetraethylammonium chloride may be dangerous in patients with a diastolic pressure over 150.

Some degree of hypertension persisted after the fall of arterial pressure produced by the administration of tetraethylammonium chloride, even though sympathetic tone was decreased (chart 2). This would suggest that other factors such as arteriolar sclerosis, endocrine or humoral mechanisms were also important in the maintenance of an elevated diastolic pressure. It is apparent that in a consideration of the mean pressure changes at different diastolic levels the diminution of sympathetic tone produced in this manner may bring about greater decreases in pressure at higher diastolic levels but cannot be expected to produce a fall in pressure to normal.

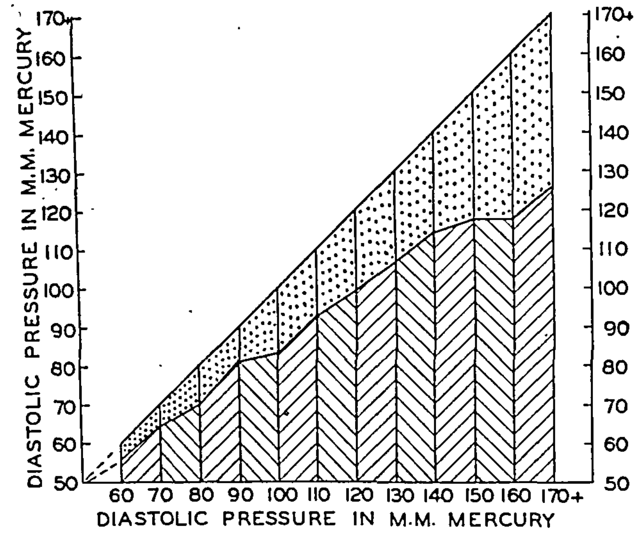


Chart 2.—The stippled area represents the mean decrease in pressure in millimeters of mercury at each diastolic level produced by 300 to 500 mg. of tetraethylammonium chloride intravenously in 437 patients. The decrease in pressure is greater at higher initial pressures. The role of reflex sympathetic tone in the maintenance of pressure at different pressure levels will be reflected by the stippled area. Hypertension may still be present, however, after the decrease in sympathetic tone following *administration of tetraethylammonium chloride.*

This is similar to the experience found after splanchnicectomy for hypertension. The operation also decreases the extent of the sympathetic vasoconstrictor tone, but it does not commonly produce a fall in pressure to normal. In the patients with high diastolic pressures greater decreases in pressure are experienced than in those with lower diastolic pressure, but usually some degree of hypertension will persist after the operation.

FAILURE TO EXPERIENCE A DECREASE IN PRESSURE

It has been noted that certain patients who are apprehensive about the procedure of multiple blood pressure measurements and intravenous injections may fail to respond to tetraethylammonium chloride on that occasion but respond later to an intramuscular injection or to the same procedure on another occasion when they are no longer apprehensive. It has been shown in animals[2] that hypertension produced by the infusion of epinephrine or angiotonin may not be altered by tetraethylammonium chloride. It seems likely that these patients may have epinephrine-like substances present at the time of injection which will alter the effects of tetraethylammonium chloride by the direct action of the pressor substance on the arterioles.

Other patients who are not apprehensive may fail to have a significant decrease in pressure after repeated injections of the drug though they may have an increase in peripheral blood flow, postural hypotension and other manifestations of alteration in the degree of sympathetic tone. It would seem likely that the recumbent blood pressure in such cases is maintained without the aid of sympathetic vasoconstrictor tone.

In a few subjects there is an increase in heart rate of 40 to 50 beats per minute with a resulting tachycardia of 140 to 150. In some patients with such a rapid rate there may still be a fall in diastolic pressure; in others, however, it is possible that diastole is too short to permit the usual fall in diastolic pressure.

In 6 patients with repeated injections, there was a change in the response of the blood pressure to the drug. The patient would have a moderate decrease in pressure with the initial injection or the first two or three injections, but with subsequent injections the diastolic pressure failed to change even though other evidence of blockade could be demonstrated. There is no satisfactory explanation for this at present.

EVALUATION OF SYMPATHETIC TONE IN THE SELECTION OF CASES FOR OPERATION

It is unlikely that patients with hypertension maintained with a low degree of sympathetic vasoconstrictor tone will be greatly aided by operative procedures designed to interrupt the sympathetic control of vessels. Evaluation of this functional type of vasoconstriction is difficult and in general unreliable. Various types of pressor and depressor responses have been utilized as a test of the variability of blood pressure in order to better select candidates for the successful operative treatment of hypertension. No test has been satisfactory.

Because of the action of tetraethylammonium chloride in producing an autonomic blockade, it would seem to be a better method of evaluating the changes in pressure that could be expected by operative procedures. On consideration of the effects of the drug on the circulation, it is obvious that it will not simulate precisely the circulatory changes to be found in the absence of sympathetic tone alone. It may be a useful adjunct, however, in roughly estimating the extent of the reflex vasoconstrictor tone in the selection of candidates who may be improved by operative procedures on the sympathetic nervous system.

To evaluate this type of depressor response, candidates otherwise suitable for splanchnicectomy have been given injections of 300 to 500 mg. of tetraethyl ammonium chloride intravenously, and the ensuing alteration in the blood pressure has been carefully noted. In the performance of the test, excitement and alarm on the part of the patient is avoided or the test is repeated on another occasion. The response was evaluated by the percentage change between the initial diastolic pressure and the lowest diastolic pressure obtained over a three minute period after the injection of the drug.

At present, 58 patients who received injections of tetraethylammonium chloride in these doses have been reexamined six to eighteen months (average one year) after supradiaphragmatic splanchnicectomy and lower dorsal ganglionectomy (Peet). The depressor response to tetraethylammonium chloride was not considered in accepting or rejecting suitable candidates for the operation. Ten patients were studied in a similar manner early in our experience but were given small intravenous doses or intramuscular injections and are not included because of the uncertainty of a standard reaction pattern.

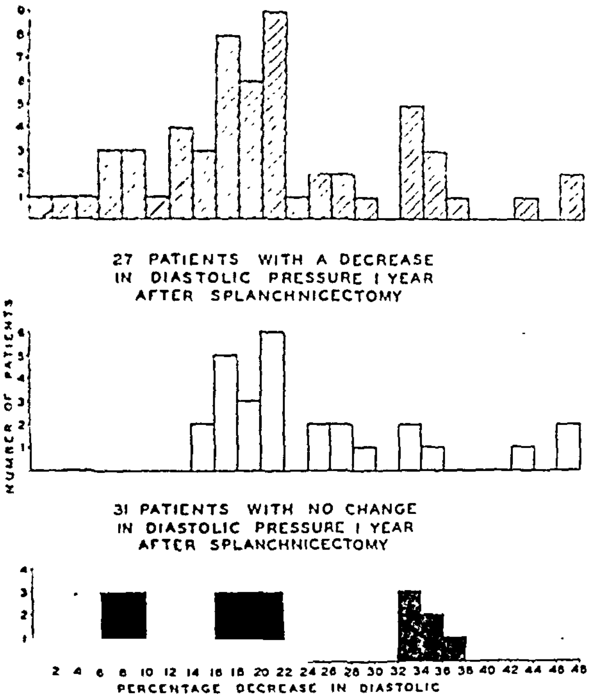


Chart 3.—The percentage decrease in diastolic pressure produced by 300 to 500 mg. of tetraethylammonium chloride intravenously before operation in 58 patients who have been followed for an average of one year after splanchnicectomy.

The 58 patients have been divided into those in whom a decrease in blood pressure of more than 10 per cent of the initial diastolic pressure was noted one year after the operation, 27 patients, and those who had even less change in pressure or an increase in pressure after operation, 31 patients.

It is noted in chart 3 that all patients who had a decrease in pressure after operation had a considerable change in the preoperative diastolic pressure after the administration of tetraethylammonium chloride. The smallest change in diastolic pressure after administration of the drug was 14 per cent of the initial diastolic level.

In contrast to this were the 31 patients who had no change in diastolic pressure after operation. Ten of the 31 failed to have even a 10 per cent change in their preoperative diastolic pressure after receiving tetraethylammonium chloride. Four more had less than 14 per cent decrease in pressure. The other 17 patients, however, had responses similar to the responses of those who had improved after the operation. It would seem probable that the patients who failed to have a decrease in diastolic pressure of 10 per cent or more after injections of tetraethylammonium chloride might not be expected to have as good an effect from the operative procedure. Final conclusions, however, should not be made from such a small series of cases. As the series is extended, it is probable that some patients who were alarmed or excited at the time of the injection will fail to respond to the drug, but may nonetheless have a good result from the operation. A good response to the drug, on the other hand, does not necessarily indicate that a successful result from splanchnicetomy can be expected. The chances of a successful result are somewhat better.

RESPONSE OF THE BLOOD PRESSURE AFTER SPLANCHNICECTOMY

If the sympathetic vasoconstrictor tone in the splanchnic area was important in the maintenance of blood pressure in the supine position, it would seem likely that the extent of the fall in diastolic pressure with tetraethylammonium chloride after section of these nerves would be diminished. This was observed in the patients who had experienced some fall in pressure one year after the operation. Before operation there was a mean decrease in diastolic pressure of 24 per cent in response to the drug, while after operation there was an average decrease of only 9.6 per cent (chart 4). There was a somewhat better than average response to the drug before operation and a decidedly poorer than average response after operation. In these cases it would appear likely that the sympathetic tone in the splanchnic bed had contributed significantly to the maintenance of the increased arterial pressure.

On the other hand, the patients who failed to have any change in pressure after the operation in general had an average preoperative response to tetraethylammonium chloride somewhat below the average levels found in the study of the 437 patients. The preoperative and postoperative decrease in diastolic pressure with the drug averaged 17.5 and 15.8 per cent, respectively. It is possible in these patients that the splanchnic vascular bed did not contribute significantly to the increased peripheral vascular resistance, since dener-

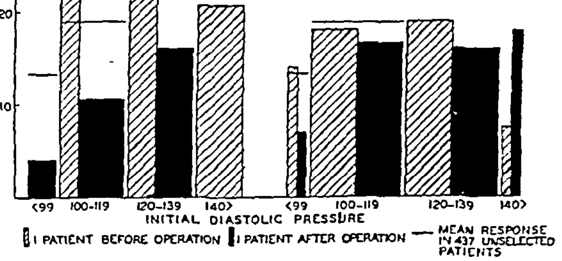


Chart 4.—A comparison of the difference in response of the diastolic pressure to tetraethylammonium chloride before and one year after splanchnicectomy. The shaded columns represent the mean percentage decrease in diastolic pressure following administration of tetraethylammonium chloride before operation. The solid black columns represent the mean decrease in diastolic pressure following administration of tetraethylammonium chloride one year after operation.

vation of this area neither lowered the pressure nor significantly affected the response to a generalized decrease in sympathetic tone.

EFFECT OF TETRAETHYLAMMONIUM CHLORIDE ON HEADACHE

In addition to being of some value in the rejection of cases in which a good result after splanchnicectomy was less likely there has been a rather remarkable relief of symptoms in some hypertensive patients following injection of the drug. In a number of instances hypertensive patients who entered the hospital with severe headaches, somewhat confused thought and at times blurring of vision had prompt symptomatic relief following the administration of the drug. In some the headache would recur a few hours later, while in others it would not return for many weeks. It is always difficult to evaluate such subjective responses even though in many instances control injections of isotonic solution of sodium chloride were administered to rule out suggestive relief of symptoms.

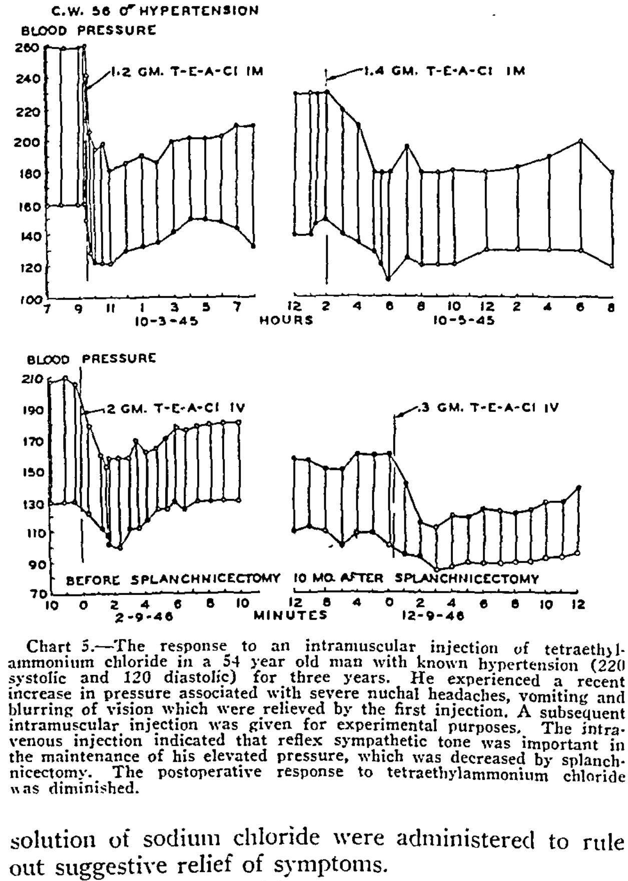


Chart 5.—The response to an intramuscular injection of tetraethylammonium chloride in a 54 year old man with known hypertension (220 systolic and 120 diastolic) for three years. He experienced a recent increase in pressure associated with severe nuchal headaches, vomiting and blurring of vision which were relieved by the first injection. A subsequent intramuscular injection was given for experimental purposes. The intravenous injection indicated that reflex sympathetic tone was important in the maintenance of his elevated pressure, which was decreased by splanchnicectomy. The postoperative response to tetraethylammonium chloride was diminished.

In those patients with hypertension and uremia no symptomatic relief was noted, and in general the drug had little effect. In cases of dyspnea associated with uremia and hypertensive heart failure, the administration of the drug generally failed to lower the pressure significantly and only made the patient more uncomfortable because of the presence of postural hypotension. A few patients with heart failure without uremia experienced temporary relief of dyspnea during the depression of the blood pressure.

INTRAMUSCULAR INJECTIONS

When the drug was administered in the muscle in doses between 10 and 20 mg. per kilogram of body weight, the effects were generally less predictable but more prolonged because of different rates of absorption. In some instances there was an abrupt drop in pressure within two and three minutes which would continue for one to five hours (chart 5). At other times no change in pressure occurred in patients who had experienced a considerable decrease after an intravenous dose. In general, the intramuscular injection was associated with moderate local pain at the site of the injection. The other effects of autonomic blockade make the patient rather uncomfortable. Except for the occasional relief of severe symptoms resulting from the hypertension, the patient generally fails to be benefited by a prolonged period of depressed pressure, for as the effects of the drug disappear the pressure returns to its previous level.

Occasionally in hypertensive patients who have had recent elevation of pressure above their usual pressure level, either intravenous or intramuscular injections may decrease the pressure considerably. As the effects of the drug disappear the pressure will return to its usual level rather than to the high level temporarily present (chart 5). Similar changes have frequently been observed to occur spontaneously after one to three days of hospitalization.

THE FUTURE OF SIMILAR DRUGS IN HYPERTENSION

The action of compounds of this type apparently depends on their ability to compete temporarily with acetylcholine at the ganglionic junction of both the parasympathetic and sympathetic nervous systems. Acetylcholine is necessary for the transmission of nerve impulses through those ganglions. It would seem likely, therefore, that other drugs of this type which would be developed would have the same type of action on both the sympathetic and parasympathetic nervous systems if they produce a blockade at the ganglions. Under these circumstances prolongation of the action of the blockade will generally result in discomfort to the patient from the absence of parasympathetic tone on the gastrointestinal tract and salivary glands. The continued postural hypotension from sympathetic ganglionic blockade forces the patient to remain supine. The loss of accommodation is annoying. Methods of prolonging the action of tetraethylammonium chloride have been investigated without success up to the present time. Even if the effects could be more prolonged such drugs would offer no advantages in the daily management of the hypertensive patient. They may have limited usefulness in the evaluation of vasomotor tone and in the symptomatic relief of hypertensive headaches. Tetraethylammonium chloride is, however, a useful pharmacologic tool in the study of the manifestations of the autonomic nervous system.

SUMMARY

The action of tetraethylammonium chloride on the blood pressure of 437 patients has been described.

It is suggested from the mean decreases in blood pressure that an abnormally elevated initial diastolic pressure is maintained with somewhat more reflex vasoconstrictor tone than when the initial diastolic pressure is normal. Decrease in sympathetic tone produced by the drug fails to return the pressure to normal, suggesting that other factors are present in maintaining the elevated pressure.

Failure of the pressure to fall more than 10 per cent of the initial diastolic level was noted in 16 per cent of 228 hypertensive patients. These patients had a

greater incidence of degenerative changes associated with their hypertension. It is suggested that vasomotor tone did not play an important role in the maintenance of pressure in these cases.

All 27 patients who had some decrease in diastolic pressure one year after splanchnicectomy responded to the drug before operation with a fall in pressure greater than 14 per cent of the initial level. Ten of the 31 patients who failed to have a change in pressure with splanchnicectomy had less than a 10 per cent fall in pressure with the drug. The response to repeated injections of the drug one year after splanchnicectomy was greatly decreased in the patients who had had a fall in pressure with operation and was essentially unchanged in those patients who failed to have a decrease in pressure with operation.

Hypertensive headaches are often relieved by the drug.

Tetraethylammonium chloride has no place in the daily management of hypertension.

ABSTRACT OF DISCUSSION

Dr. K. G. Kohlstaedt, Indianapolis: Dr. Lyons has noted a decrease in the hypotensive effect of tetraethylammonium in patients in whom the blood pressure was significantly reduced by sympathectomy. A comparable loss of responsiveness to the drug was not observed in persons in whom surgical treatment had failed to alter the level of the arterial pressure. These results suggest that in some but not all hypertensive persons vasoconstrictor tone in the splanchnic area may be a factor in maintaining an elevated arterial pressure in the supine position. However, we must be cautious in drawing conclusions regarding the etiology of hypertension on the basis of the patient's response to any drug. Interpretation of Dr. Lyons' results is complicated because tetraethylammonium affects both the sympathetic and the parasympathetic nervous system. Hypertension is a clinical sign, not a disease entity, and more than one causative agent may be responsible for elevating the arterial pressure in the syndrome which we call essential hypertension. We cannot expect widespread blockade of the autonomic ganglions to produce the same effects as the removal of a portion of the sympathetic nervous system. In my opinion the failure of tetraethylammonium chloride to lower distolic pressure as much as 15 per cent is more significant than any hypotensive effect which the drug may have. In Dr. Lyons' cases, there were 14 in which tetraethylammonium did not lower the diastolic pressure, and in all of these sympathectomy also failed to produce a permanent reduction in arterial pressure. Investigation of the renal hemodynamics by means of iodopyracet-inulin clearance has revealed that in essential hypertension an increase in filtration fraction (the ratio of glomerular filtration-inulin clearance to the effective renal plasma flow-iodopyracet clearance) indicates an advanced stage of the disease. There is a considerable amount of evidence to support the hypothesis that this change in renal hemodynamics is due to the direct action of a pressor substance on the arterioles of the kidney. In patients who did not respond to tetraethylammonium in our group at the Indianapolis City Hospital, there was invariably an elevated filtration fraction. On the other hand, in some with an elevated filtration fraction, tetraethylammonium lowered the diastolic pressure more than 15 per cent, and in all patients with essential hypertension in whom the filtration fraction was normal tetraethylammonium always produced a decrease in diastolic pressure. These findings suggest that failure to respond to tetraethylammonium may denote a type of hypertension in which vasoconstrictor tone may play only a minor role in the production of an elevated arterial pressure.

Dr. Eugene Foldes, New York: I should like to present some observations with reference to the pathogenesis and therapy of hypertension. A patient with hypertension was under observation for thirteen years. In 1936, diabetes was discovered. Before the discovery of diabetes and probably at the time when hyperglycemia developed, the blood pressure dropped and stayed at normal or moderately increased levels for about one year. Later, when the blood sugar was brought under control, the blood pressure increased again. In another patient, a moderate hypertension developed in the course of years. In 1942, diabetes was discovered. As in the first case, the blood pressure dropped, probably simultaneously with the development of hyperglycemia. In the case of diabetes and hypertension represented in this slide, you can see that when the blood sugar rises, the blood pressure drops, and when the blood sugar drops, the blood pressure increases. Broadly speaking, it can be stated that in the hypertensive diabetic patient there is an inverse relation between the blood sugar and the blood pressure. One possible explanation is that hyperglycemia leads to glycosuria, glycosuria leads to polyuria, polyuria to dehydration, dehydration to reduction of the circulatory blood volume and that to a drop in the blood pressure. The other possible explanation considers the adrenal cortex. It is axiomatic that if in the organism such conditions exist as are promoted by a gland of internal secretion, that gland decreases its function. Therefore, if the blood sugar increases in the hypertensive diabetic patient, the adrenal cortex which tends to raise the blood sugar would seem to decrease its function. If the adrenal cortex decreases its function, sodium chloride is eliminated through the kidneys at an increased rate. That would seem to be followed by a reduction of the circulatory blood volume and by a reduction of the blood pressure. Further investigations are necessary. It will also be necessary to determine whether or not hypertensive diabetic patients will be better off with a comparatively high blood sugar in order to keep their blood pressure comparatively low.

Dr. Frederick M. Allen, New York: Whatever the symptomatic or instructive values of any drugs, they should not distract attention from the fundamental diet treatment. Our papers proposing salt-free diet in 1920 and 1922 gave full credit to the prior French work, but our method was complete before we ever knew of the French work. We originated the following major advances: 1. We corrected the fallacy of "chloridemia" and prohibited not only the chloride but all other salts, such as sodium bicarbonate and baking powder. 2. We introduced the necessary standard of strictness, and although laxity of so-called salt-free diets prevailed long afterward, all recent writers on cardiac, renal and vascular treatments now accept our strict standard. 3. Except for the unknown work of de Snoo, we originated salt-free diet for puerperal eclampsia. 4. We insisted on essential hypertension as a definite disease and not an accidental complex of symptoms. 5. We characterized salt-free diet as a specific means of relieving functional strain and therefore as a solution for the huge mortality problem, by arresting progressiveness in cases of disease properly diagnosed and treated from early stages. These ideas were so advanced that not all are yet accepted, though they are supported by twenty-eight years of experience. In experimental animals, the hypertensive influence of salt was demonstrated first by Verney and Vogt in England, then by myself and lately by Grollman-Harrison, Selye and others.

Dr. Richard H. Lyons, Ann Arbor, Mich.: Dr. Kohlstaedt's point is well taken, that if we are to use a negative response to tetraethylammonium to contraindicate sympathectomy then great care must be taken to avoid apprehension and to give adequate doses. It has been shown that injection of epinephrine in animals or man would negate the response to tetraethylammonium, and certainly in human beings who are apprehensive there may be no fall in pressure due to an epinephrine response. I do not wish to enter into the polemics of the causes or specific treatment of hypertension. I have merely tried to describe to you the role that vasomotor tone may play in the maintenance of an elevated blood pressure.

STREPTOMYCIN SENSITIVITY

Development of Sensitivity in Nursing Personnel Through Contact During Administration of the Drug to Patients

SOLOMON M. RAUCHWERGER, M.D.
FREDERICK A. ERSKINE, M.D.
and
WALTER L. NALLS, M.D.
Oteen, N. C.

Although the development of sensitivity to streptomycin is of common occurrence in patients receiving the drug over a period of weeks or months and has been reported many times, we have been unable to find specific reports in the literature concerning the incidence and character of the reaction among personnel concerned with the administration of the drug. In recent protocols issued for administration purposes by the Veterans Administration outlining use of the drug in Veterans Administration hospitals,[1] there is brief mention of 2 cases developing in personnel after prolonged contact. The suggestion was made in these protocols that all nurses be given patch tests to determine sensitivity, apparently with the intent that positive reactors be kept from contact with the drug. Through personal communication [2] it has also been reported that instances of sensitivity to streptomycin have developed among the nursing staff at Western North Carolina Sanatorium. Peck, Siegal and Bergamini [3] stated that 5 per cent of penicillin sensitivity is the result of "autosensitization," occurring in persons who have a dermatomycosis, the fungi present producing penicillin which acts as the antigen. In none of our cases were we able to detect the presence of an actinomycotic infection which might cause similar sensitization to streptomycin.

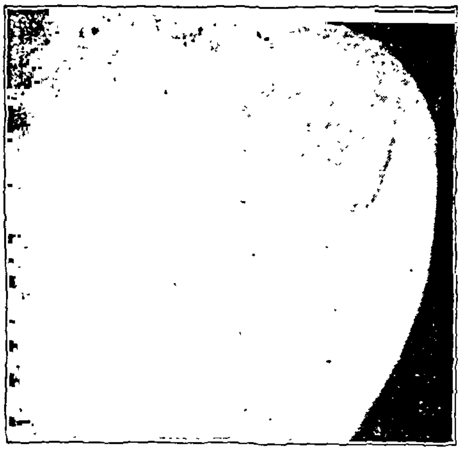


Fig. 1.—Denuded area on thumb of nurse representing a contact dermatitis following development of sensitivity to streptomycin.

Over a period of twenty months streptomycin was administered to 233 patients in the thousand bed tuberculosis hospital at Oteen, N. C. During this time in 6 nurses a definite sensitivity to the drug developed. In view of the widespread use of the drug, especially in tuberculosis sanatoriums, and in view of the acute shortage of nurses throughout the country and the factors discussed later in this article, we feel that any effort to exclude personnel from contact with the drug poses an extremely difficult problem and is of compelling current interest.

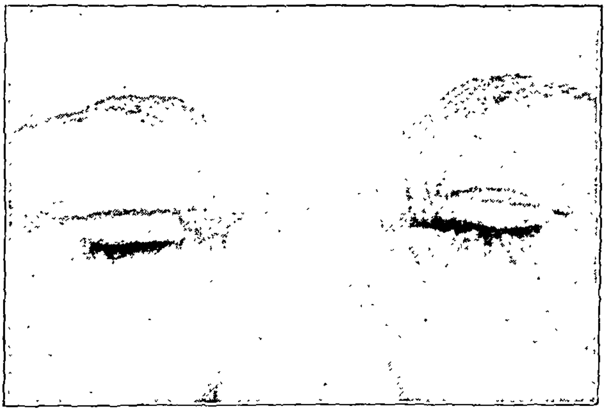


Fig. 2.—Periorbital edema occurring in nurse M. K. G. as part of a generalized reaction following a cutaneous test dose of 100 units of streptomycin.

Sensitivity to streptomycin in all our cases was characterized by an initial erythema followed by pruritus and a papulovesicular eruption. The pruritus constituted a most distressing symptom. In 2 patients there was actual denuding of the skin (fig. 1) over the terminal phalanges of the thumbs and index fingers of both hands. This was considered to be the result of more frequent contact of these areas with the drug in the handling of syringes and needles. Five of the 6 patients showed involvement of the periorbital areas, manifested by a moderate to severe edema of both lids associated with pruritus and photophobia. The conjunctivas were not involved.

Involvement of the periorbital areas was undoubtedly due to autoinoculation. This was exemplified by what many will recognize from personal experience as a not uncommon and somewhat amusing occurrence. One of the nurses while being interviewed unconsciously rubbed her nose and eyes three times, maintaining positively at the same time that she was careful to keep her hands away from her face.

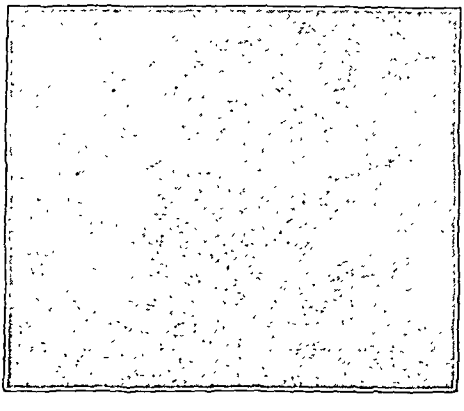


Fig. 3.—Strongly positive cutaneous reaction following intradermal administration of 100 units of streptomycin.

From the Department of Medicine and Surgery, Veterans Administration, Oteen, N. C.; published with permission of the Chief Medical Officer, Department of Medicine and Surgery, Veterans Administration, who assumes no responsibility for the opinions expressed or conclusions drawn by the authors.

[1] Veterans Administration Technical Bulletin 10-37, Sept. 24, 1947.

[2] Bittinger, S. M.: Personal communication to the authors.

[3] Peck, S. M.; Siegal, S., and Bergamini, R.: Successful Desensitization in Penicillin Sensitivity, J. A. M. A. 134: 1546-1547 (Aug. 30) 1947.

The following case report is representative of the *onset and course in all 6 cases.*

REPORT OF CASE

Nurse M. K. G. had been on a ward where she administered streptomycin daily over a period of eighteen months, when she first noted the characteristic appearance of erythematous areas over the dorsal aspects of several fingers of both hands. This eruption was quickly followed by severe pruritus of the involved areas. Within the next few days she began to show puffiness of her eyes, also accompanied by itching. Because of the recent acquisition of bifocal lenses, this nurse ascribed her eye symptoms to the use of her new glasses. However, from the lesions on her hands, together with a history of contact, and in the light of our recent experience with this entity, we felt that this was a case of streptomycin sensitivity. An intradermal test with 100 units of streptomycin in 0.1 cc. of isotonic solution of sodium chloride was done. This test dose was followed by a severe response. Within twelve hours the periorbital edema noted in figure 2 developed, and the patient experienced a pronounced photophobia. She also had a 4 plus local reaction (fig. 3) measuring 20 by 35 mm., and a flare-up of the lesions on her hands. Her urine was essentially normal but her blood count revealed eosinophilia (19 per cent). She was placed on diphenhydramine hydrochloride ("benadryl"), 50 mg. four times daily for three days, with little or no response. "Pyribenzamine hydrochloride" (tripelennamine hydrochloride) was then administered, 50 mg. four times daily, with definite relief of symptoms within twelve hours. She returned to duty within two weeks after the original onset. This greater efficacy of "pyribenzamine" as compared with "benadryl" medication was uniform in the 3 of our cases in which it was employed for relief of symptoms.

Since these lesions simulated dermatophytoses in some respects, smears and cultures were made from scrapings of the lesions. Smears were negative and cultures showed no growth on blood agar and Sabouraud's mediums after five weeks.

Since these nurses in all instances were in intermittent contact with the administration of streptomycin for periods varying from eight to eighteen months, and manifested sensitivity to the drug only during the past three months, it is probably safe to assume that this type of reaction will develop only after a prolonged period of contact with the drug—i. e., after several months. However, the possibility that sensitivity will develop in the absence of signs and symptoms thereof is thought to be of considerable importance, inasmuch as these persons may be considered potentially subject to an outbreak of dermatitis. Conceivably, this might well occur, with continued exposure tending to augment the sensitivity already present. Furthermore, it is an obvious possibility that many of these persons may some day require the drug and be unable to be benefited because of this acquired sensitivity.

These factors constitute a definite occupational hazard for nurses, pharmacists, laboratory technicians or any one concerned with the administration or handling of the drug. As a consequence, it was considered worth while to do cutaneous tests for the entire nursing staff, the laboratory technicians and pharmacists at this hospital with the intention of instituting a program of desensitization for positive reactors.

The following method was used in the cutaneous tests. A group of 24 persons consisting of physicians and clerical workers was used as a control series. None of these persons had had any actual contact with streptomycin. This group was subdivided into four equal lesser groups and 10, 25, 50 and 100 units of streptomycin per 0.10 cc. of isotonic solution of sodium chloride was administered intradermally to each of these groups, respectively. There were no positive reactors among the controls. One hundred units of streptomycin was administered intradermally to 97 members of the nursing staff. Seven persons (7.2 per cent) gave definitely positive reactions in twenty-four hours. There were doubtful positive reactions in 6 persons (6.2 per cent) in twenty-four hours. Patch tests done on 3 nurses resulted in two positive reactions in twenty-four hours. The patch test done on the third nurse elicited no reaction for three days, during which time she was receiving "pyribenzamine," 50 mg. every four hours, for severe pruritus accompanying her dermatitis. Three days after cessation of "pyribenzamine" medication, this nurse's patch test elicited a strongly positive reaction, indicating a probable inhibition of the cutaneous test by the antihistaminic drug. It is felt that the patch test gives inconstant results because of the difficulty of regulating the concentration. For this reason the intradermal test was adopted. By this method, cutaneous tests will be repeated every four months in an attempt to detect early cases of sensitivity.

As prophylaxis against the development of any further sensitization in like manner, the practice has been established of wearing rubber gloves, with hand washing before and after the handling of streptomycin and of the syringes and needles used in its administration. During the search for possible contaminating practices, it occurred to us that over a period of months "inadvertent nebulization" during sterilization of needles and syringes might well be etiologically significant. Therefore, it is now the practice to allow all sterilizers to cool before opening, in order that there will be no exposure to any emanating steam. A better plan, if feasible, would be to centralize the sterilization of syringes and needles. To date, this plan has not been considered suitable for adoption at this institution.

Protective creams such as those used against flash burns in the armed services might be given a trial, but are not thought to offer the best protection and have not been used at our hospital.

It is strongly urged on the basis of these findings that intradermal testing be performed as outlined in institutions where streptomycin is used at all extensively, and that the prophylactic measures outlined be put to use. With the ever expanding number of antibiotics employed in modern therapy, the reminder that a high index of suspicion be maintained with respect to development of sensitivity to these agents is considered timely.

Allorhythmias.—Two beats following each other within a short time and separated from the next identical group by a longer diastole are classified among the allorhythmias which are called bigeminy or coupled beats. This term, coined prior to the electrocardiographic era, includes, however, at least three different disturbances. First, the succession of groups in which each beat of the basic rhythm is followed by a premature contraction; in this instance, the term bigeminy as a synonym for coupled rhythm is generally accepted. A second form includes examples of an allorhythmia which was later recognized with the aid of the electrocardiograph as due to an auriculoventricular block; a 3.2 block, for instance. The third disturbance is a rare condition which Wenckebach named "true bigeminy." In this type, both beats of each group look alike in the electrocardiogram, for they originate in the same focus.—Scherf, David, M.D. (New York) and Romano, F. J., M.D. (Buenos Aires, Argentina) Extrasystoles in Groups, *American Heart Journal*, page 81, January 1948.

THE HEMORRHAGIC TENDENCY IN CONGESTIVE SPLENOMEGALY (BANTI'S SYNDROME)

Its Mechanism and Management

LEANDRO M. TOCANTINS, M.D.
Philadelphia

This paper is an exposition of some concepts of the mechanism of the hemorrhagic disorder encountered in Banti's syndrome (congestive splenomegaly, portal hypertension), of means for the recognition of its manifestations and of methods found useful in the control or amelioration of the tendency to bleed. The discussion that follows rests on observations made on 22 patients for whom a diagnosis of Banti's syndrome seemed indicated and who had had bleeding in one form or another. In 9 of the patients evidence of cirrhosis was obtained clinically, at operation or at necropsy. From the histories, it was probable that splenomegaly had preceded the manifestations of cirrhosis. Hematemesis or melena was the form of bleeding in 17 patients. Epistaxis, hematuria, vaginal bleeding, purpura and hemothorax were some of the other forms. The incidence of hemorrhagic complications in patients with this syndrome is difficult to estimate. Except for a brief mention of epistaxis, Banti said little about bleeding in his original article.[1] He seemed to attribute the anemia to the effect of endogenous toxic substances elaborated by the spleen. In Barg and Dulin's [2] series of 43 patients, 39 per cent had hematemesis and 25 per cent epistaxis. Of the patients reported by Rousselot [3] to have died after splenectomy, 8 (38 per cent) had had hemorrhage. Bleeding (epistaxis, melena, purpura) of a slight character, giving rise to no systemic symptoms, is probably common in patients with this syndrome, but it is often overlooked. In many patients this symptom overshadows all others and forces consideration of measures for its control.

Clinical Recognition.—The syndrome has clinical features common to several diseases. Congestive splenomegaly must be differentiated from the various types of splenomegaly, with or without anemia, leukopenia and thrombopenia, and a number of conditions giving rise to gastrointestinal hemorrhage. When the syndrome is fully developed or when it has followed portal cirrhosis, there is usually little difficulty in recognizing it. In the early phase, it is nearly always confused with other hemorrhage-producing lesions of the gastrointestinal tract. Pain and digestive disturbances are seldom complaints. A sense of heaviness in the upper part of the abdomen after eating may be the only complaint at first. An examination of the abdomen immediately after a severe hemorrhage, and for a week or so afterward, may not disclose enlargement of the spleen.

Case 1.—A white girl 15 years of age was admitted to Jefferson Medical College Hospital on Oct. 16, 1942, because of a sudden hematemesis. Her hemoglobin content was 4.8 Gm. per hundred cubic centimeters, with 1,090,000 red blood cells, 9,200 leukocytes and a platelet count of 80,000. A special search was made for any mass or enlarged organ in the abdomen. The spleen was not palpable. The patient was given four transfusions, and on October 26 (ten days after the onset of vomiting of blood) the spleen was felt for the first time. At operation, eight days later, the spleen weighed 610 Gm. and was turgid with blood; histologic examination of sections revealed little increase in fibrous tissue.

Case 2.—A white man aged 23 was admitted to Jefferson Medical College Hospital because of faintness, weakness and the passage of tarry stools. His first attack of hematemesis had taken place seven months before, at which time he had required several transfusions. In the interim he had been in good health. Except for pallor, physical examination at the time of admission to the hospital revealed no abnormality. There were normochromic anemia, leukopenia and moderate thrombopenia. Tests of hepatic function and roentgenographic studies of the gastrointestinal tract gave normal results. Ten days after his admission to the hospital the spleen was first clearly felt on deep inspiration.

The fact that during the early stages of the disease the spleen has not yet become fibrotic is probably what allows it to contract after a hemorrhage. Much of the blood lost through the broken varicosities comes from the spleen; this fact also accounts for the reduced volume of the organ after hemorrhage. Once the vascular defect has been repaired and the tension in the portal circuit is again increased, the spleen once more becomes distended with blood. The succession of these changes, namely, the gradual increase in portal hypertension and the sudden decompression by hemorrhage, followed by a repeated rise in portal tension, accounts perhaps for the periodicity of the attacks of gastrointestinal bleeding in patients with this disease. Spread of the varicosities or loss of distensibility of the spleen because of advanced fibrotic changes may be among the factors in the increase in frequency of the attacks as the patient becomes older.

Case 3.—A man aged 35 had his first attack of hematemesis in 1934. He was treated for gastric ulcer and was free from hemorrhage until July 1939, when he vomited blood for about a week. In February 1940, August 1941, August 1942, April 1943 and September 1943, he had similar attacks, each of which required hospitalization and several transfusions. Between these attacks he was in perfect health. About a month before the last attack he was thoroughly examined, and the spleen was then felt about 6 cm. below the costal margin. On the day after the onset of the last hematemesis the erythrocyte count was 1,600,000 per cubic millimeter, and the spleen could not be felt on deep inspiration. One month later it was palpated 4 cm. below the costal margin; it weighed 357 Gm. when removed.

A few other differentiating points are helpful. Persistent leukopenia and thrombopenia, with little or no alteration after a hemorrhage, are characteristic signs. Absence of roentgenographic evidence of gastric or duodenal ulcer and enlargement of the splenic shadow are suggestive. A history of severe trauma to the abdomen two to three years before the first attack of hematemesis is occasionally obtained. (Such a history was given by 2 patients in my series.)

Examination of the sternal marrow may help to eliminate the anemias, leukopenias and thrombopenias due either to hypoplasia of the bone marrow or to leukemic infiltration. In the earliest stages of the syn-

---

From the Division of Hematology, Department of Medicine, Jefferson Medical College of Philadelphia and Jefferson Medical College Hospital.

Read before the Section on Internal Medicine at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1947.

The surgical procedures alluded to in the case reports were carried out by or under the direction of Dr. Thomas A. Shallow, the late Dr. George P. Muller, Dr. Louis H. Clerf and Dr. Kenneth Fry, of Jefferson Hospital.

[1] Banti, G.: Sperimentale (sez. clin.) **48**: 447, 1894; Beitr. z. path. Anat. u. z. allg. Path. **24**: 21, 1898.

[2] Barg, E. H., and Dulin, J. W.: Splenectomy in Treatment of Banti's Syndrome, Arch. Surg. **41**: 91 (July) 1940.

[3] Rousselot, L. M.: Bull. New York Acad. Med. **15**: 188, 1939.

drome, the bone marrow is hyperplastic, especially the erythropoietic series. If there is thrombopenia, it may be difficult to differentiate the syndrome from "idiopathic" thrombopenic purpura. In the later stages, when there are ascites and severe impairment of hepatic function, the bone marrow may be hypoplastic.

Roentgenologic examination is helpful in the demonstration of varices in the esophagus, which are usually located in its lower portion.[4] Lateral and right oblique views are best obtained at various stages in the progress of the barium sulfate mixture, with the patient in a horizontal position, or even in the Trendelenburg position, to favor a slow emptying of the esophagus and to accentuate the varicosities. The varices, when not fully developed, will at first appear only as large folds of the mucosa, about the thickness of a pencil, differing from the usual esophageal folds in their tortuosity. If the examination is made only a week or so after a hemorrhage, the veins will probably not stand out, since the hypertension in the portal circuit has been temporarily reduced. In the far advanced case, rounded, ampulla-like, irregularly spaced folds of the mucous membrane may be observed ("pearl necklace" formations, fig. 4).

Endoscopic examination, attended with small risk in the hands of an experienced worker, helps to identify the varicosities and to determine their approximate size. The examination preferably should be conducted a few months after the bleeding has stopped, when there is a greater chance of detecting distended veins.

MECHANISM

Cause of Excessive Bleeding.—The hemorrhagic tendency of this syndrome is due both to local and to systemic causes. All portions of the hemostatic mechanism (vascular, extravascular and intravascular)[6] are usually involved.

1. Vascular defects. The involved vessels are the branches of the portal system, usually those in the esophagus or the rectum (fig. 1). The wall of the vein is stretched, undermined and ruptured. Cicatricial rings distort the lumen of the vessel and lead to dilatations.

2. Extravascular defects. The mucosa overlying the distended veins is thinned and eventually sloughs, leaving a "varicose ulcer," which contributes to the erosion of the wall of the underlying vein.[6] These defects are difficult to visualize, gastroscopically or roentgenographically during life. Even at autopsy the veins must be injected in order to disclose the defective areas.[6] As in the case of punctured tire tubes, inflation is necessary to locate the site of the leak.

3. Intravascular defects. The thrombopenia and hypoprothrombinemia of this syndrome hinder the prompt formation of an effective hemostatic plug at points where small ruptures of the veins have occurred. This delay allows the vascular defect to remain unrepaired, and the flow of blood is unchecked until large amounts have been lost. The thrombopenia may result from overactivity of the spleen, both in its effect of hematopoietic depression and through increased destruction of platelets in the enlarged, overdistended organ, which holds large amounts of slow-moving or stagnant blood. The fact that thrombocytosis, with subsequent stabilization of the platelet count near normal levels, follows splenectomy is an indication that the spleen contributes directly to the thrombopenia. The hypoprothrombinemia probably results from transient or permanent impairment of hepatic function. In the early stages of the syndrome, the administration of a vitamin K preparation (1 to 2 mg. of menadione sodium bisulfite U.S.P. daily, parenterally) promptly restores the prothrombin level to normal. A slow or no response is a fairly dependable indication of an advanced degree of hepatic insufficiency; delay in or absence of response is usually encountered in the later stages of portal cirrhosis.

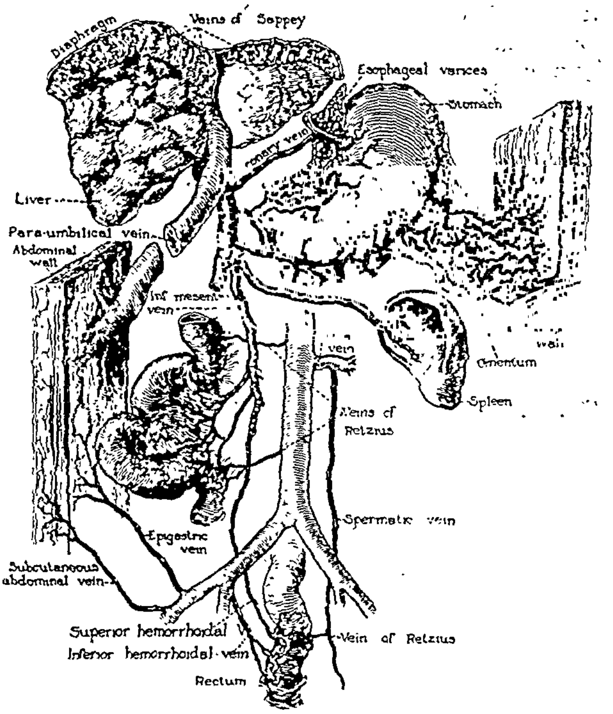


Fig. 1.—The common venous anastomotic channels between the portal circulation and the systemic venous circulation (from McIndoe[6]).

Added to this complex defect in hemostasis is the increased stress placed on the portal vessels by the hypertension within them. It is this hypertension that causes the dilatation of the portal and collateral vessels and leads to distention of the spleen. Congestive splenomegaly and the accompanying changes of Banti's syndrome are now considered to develop as a result of any pathologic process (inflammatory, neoplastic, parasitic or fibrotic) which interferes with the flow of portal blood through the liver or at any point in the splenic or portal vein.[7] In the majority of cases, the obstruction is only partial and has developed gradually. Thrombophlebitis of the splenic or portal veins, portal cirrhosis and cirrhosis due to schistosomiasis are the commonest causes of obstruction. Obstruction in the mesenteric veins leads to formation of varicosities and to intestinal bleeding; but unless the portal or splenic veins become involved by extension, it will not produce the syndrome.[3] Except in frank cases of portal cirrhosis, the exact type and location of the obstruction is difficult to determine clinically, and sometimes pathologically. Roentgenographic visualization with injections of radiopaque substances at the time of the operation has been tried.[7] In figure 2 are outlined the changes which follow obstruction in various portions of the portal circulation.

---

[4] Centeno, A. M.: Prensa méd. argent. **32**: 1531, 1945. Schatzki, R.: Roentgen Demonstration of Esophageal Varices, Arch. Surg. **41**: 1084 (Nov.) 1940.

[5] Tocantins, L. M.: Ann. Surg. **125**: 292, 1947.

[6] McIndoe, A. H.: Vascular Lesions of Portal Cirrhosis, Arch. Path. **5**: 23 (Jan.) 1928.

[7] Whipple, A. H.: Ann. Surg. **122**: 449, 1945.

The patient with this syndrome has, then, a multiple defect in hemostatic function (phlebectasia, thinning or ulceration of the overlying esophageal mucosa, thrombopenia and hypoprothrombinemia) and an exaggerated stress on the vessels due to the hypertension within them. The increase in the total blood volume, due principally to an increase in the plasma volume, which is often seen in patients with cirrhosis, may help to augment internal stresses on the vessels. It is the combination of these exaggerated stresses, poorly offset by a defective hemostatic mechanism, that renders the hemorrhages massive and difficult to control.

MANAGEMENT

During the phase of acute bleeding, efforts must, of course, be made to replace the blood lost and to reduce or arrest the bleeding. The reduction in the portal hypertension which follows a hemorrhage may in itself bring about arrest of the bleeding if the patient remains quiet and the speed of replacement and the amount of blood and fluid used are judiciously managed. As with most hemorrhagic disorders, it is well to be content with giving only enough blood to maintain the patient's circulation, without attempting to raise the hemoglobin concentration to normal levels with excessive transfusion. If the patient's hemoglobin level is 7 Gm. per hundred cubic centimeters or thereabouts, and his blood pressure, pulse and circulation are in general well maintained, it is better to let well enough alone. The general condition of the patient, particularly the state of his circulation, is a better indication of the amount of blood to be given and the time of administration than the hemoglobin concentration or the erythrocyte level. Administration of menadione sodium bisulfite U.S.P. 4 mg. daily, hypodermically, should be maintained during the hemorrhagic phase. Arrest of the hemorrhage with local measures is difficult because the bleeding vessels are not easily accessible. If the bleeding continues in spite of these conservative measures, a trial of local compression may be made. A small intestine tube provided with a distensible bag is introduced into the stomach. The bag is inflated, pulled up against the cardia, fixed and held in place for several hours (fig. 3). Liquid food may be instilled through the tube itself, and gastric contents may be aspirated to ascertain when bleeding has stopped.

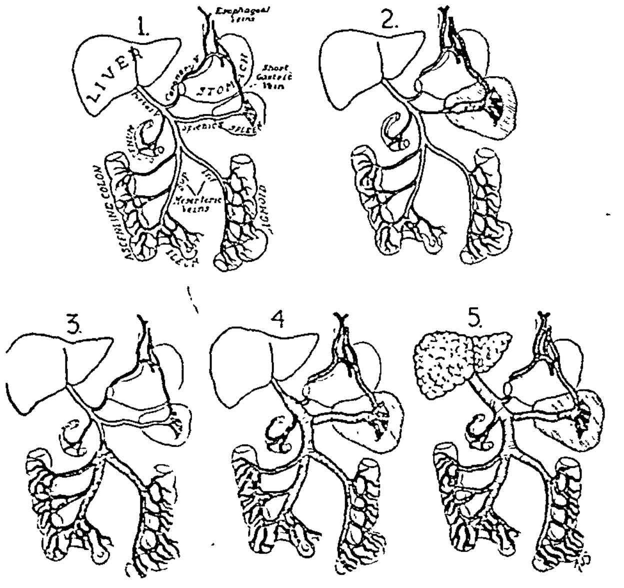


Fig. 2.—Schematic representation of the effects of extrahepatic and intrahepatic obstruction of the portal vein on some of its tributaries. Anatomic variations of the aforementioned pattern (encountered not uncommonly) will, of course, alter the scheme. *1* shows the portal circulation; *2*, obstruction of the splenic vein, splenomegaly and dilatation of the esophageal veins; *3*, obstruction of the mesenteric vein (bleeding with this type of obstruction is chiefly from the small and the large intestine); *4*, obstruction of the portal vein itself, outside the liver, and *5*, intrahepatic portal obstruction due to cirrhosis. The last type calls for the most extensive collateral venous anastomosis, such as is shown in figure 1.

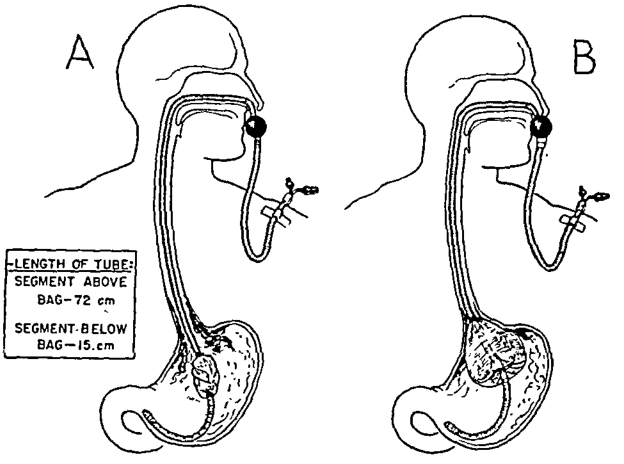


Fig. 3.—Tamponade of the cardiac end of the esophagus, with use of a specially designed tube (assembled by George P. Pilling & Son Co., Philadelphia). This procedure was originally practiced with a Miller-Abbott tube in 1944 by Dr. Edward W. Bixby (also, Rowntree, L. G., and others, Intraesophageal Venous Tamponage: Its Use in a Case of Varical Hemorrhage from the Esophagus, J. A. M. A. **135:** 630 (Nov. 8) 1947). (*A*) The tube with the deflated bag is passed into the stomach. (*B*) The bag is inflated (with 50 to 75 cc. of air) and maintained so. The tube is then drawn up until the bag is pressing against the cardiac end of the stomach. The perforated ball is slipped up against the nostril, and a loop of adhesive tape is passed around the tube just outside the ball, to prevent its slipping down. Aspiration of the gastric contents, after preliminary washing out of the stomach, will indicate whether or not bleeding is still going on. At four to six hour intervals, the bag should be deflated and allowed to remain so for twenty to thirty minutes. This procedure reduces the possibility of development of necrosis of the compressed mucosa. After a period of decompression, aspiration may be tried, to see whether there has been any bleeding. During compression, the patient may be fed through the distal segment of the tube.

Case 4.—A white man aged 53 was admitted to the Pennsylvania Hospital in May 1945, because of severe hematemesis and melena. He was known to have cirrhosis and esophageal varices. In spite of several transfusions of blood, his erythrocyte count remained under 1,000,000, and he continued to vomit large amounts of blood. Dr. Edward W. Bixby Jr., medical resident in Dr. Garfield Duncan's service, suggested using direct compression on the presumptive bleeding area. He placed a Miller-Abbott tube in the patient's stomach, inflated the bag to a pressure of 20 mm. of mercury and pulled it up against the cardia. The tube was fixed in place, and the position of the bag was checked fluoroscopically. The tube was left undisturbed for about thirty-six hours, during which there was no evidence of bleeding. Meanwhile, it was possible to raise the patient's red cell count to 4,200,000 with subsequent transfusions, without further loss of blood. He left the hospital three weeks later, in good condition.

As soon as the acute phase of bleeding is over, consideration must be given to measures for its permanent control. These measures are directed toward reduction of the portal hypertension and correction of the phlebectasia, thrombopenia and hypoprothrombinemia. The success of any, or all, of these measures depends chiefly on the character and site of the block in the portal circulation, the degree of functional impairment of associated organs, such as the liver, and the patient's general condition. Patients may be separated into two large groups: 1. Patients under 40, with hematemesis, anemia, leukopenia and thrombopenia; slight or no splenic enlargement during the hemorrhagic period, and moderate enlargement between attacks. The bone marrow is hyperplastic, especially the erythropoietic series, and hepatic function is well preserved. 2. Patients over 40, with hematemesis, melena, anemia, leukopenia and thrombopenia; normal or hypoplastic bone marrow; slight hyperbilirubinemia; occasional or permanent ascites; large, noncontractile spleen, and moderate or severe impairment of hepatic function, as indicated by poor elimination of sulfobromophthalein sodium U.S.P. and little or no increase in prothrombin after parenteral injection of a vitamin K preparation.

In patients of the first group there may be an extrahepatic or an intrahepatic block with well preserved hepatic function. The condition in this group is, of course, often responsive to therapeutic measures. In the second group there is almost certainly an intrahepatic block, as well as advanced hepatic derangement; little or no response to treatment may be expected in this group. Between these two groups is a large number of patients with combinations of defects of variable severity. It is by balancing the extent of the disability and the threat to the patient's life from the attacks of bleeding against the degree of impairment of organs such as the liver, bone marrow and the circulatory apparatus that a decision is reached as to the best procedure to follow.

Correction of the portal hypertension is attempted with splenectomy and/or diversion of the portal blood into the systemic circulation by one of several methods (omentopexy or portacaval or splenorenal shunts).

Splenectomy.—The decision for removal of the spleen in patients with Banti's syndrome rests principally on the following reasons:

(1) About 40 per cent of the blood flowing through the portal vein comes from the spleen, to which it is brought, of course, by the splenic artery. Splenectomy will then help reduce the congestion in the portal circuit by diminishing the amount of blood flowing through the liver. Some benefit might be expected, therefore, to occur even in patients in whom block of the portal circuit is intrahepatic and whose hepatic function is preserved to some extent.

2. When the obstruction is in the splenic vein itself, splenectomy is obviously curative, since it carries with it the elimination of the obstructive factor.[7]

3. In most patients, the removal of the spleen is followed by intensified hematopoiesis, with return of the platelet count to normal. One of the defects in the hemostatic mechanism contributing to the hemorrhage is thereby corrected.

It is not as yet possible to select with full confidence the patients who will be benefited by splenectomy. In those patients with the early stages of the disease or in those with a more advanced stage, yet without severe impairment of hepatic function, the results are often good. Hemorrhages from the alimentary tract may disappear entirely; often they are only diminished in frequency and intensity, while occasionally they may be aggravated. The over-all operative mortality is about 25 per cent.[2] About 50 per cent of the operative deaths are due to hemorrhage from the operative site; patients with long-standing Banti's syndrome often have adhesions of the spleen to the abdominal wall which make removal of the spleen difficult and separation of which leaves large raw areas exposed. Mesenteric or portal thrombosis and pulmonary embolism account for most of the remaining postoperative deaths. These complications occur in five to twenty days after the operation, and they can probably be prevented with heparinization. Occasionally ascites is relieved by splenectomy.[2] The duration of life seems to be appreciably prolonged by the operation,[2] principally, perhaps, because of the discontinuance or diminution in severity of the hemorrhages.

In my series of 22 patients, splenectomy was performed in 9. There were 2 deaths, 1 fifteen and the other twenty-one days after operation, both of thromboembolism. The remainder of the patients have, with 1 exception (a patient who died four years after operation), survived seventeen, sixteen, seven, seven, five and four years, respectively. Two of these patients (the ones who survived seventeen and sixteen years) have been free from attacks of hematemesis since the operation. The rest of the patients have had at least one attack of bleeding; in most instances the attacks have not been so severe as before the operation.

It is obviously impossible in many instances to tell the exact site of the obstruction without surgical intervention. Once the abdomen is open, the surgeon must, among other things, investigate the condition of the liver and of the portal bed at the hilus of liver and determine the presence of any collateral circulation and the state of the area about the spleen. If the dilated veins are situated principally in the left half of the abdominal cavity and there is little or no dilatation in the cecal region, it is probable that the splenic vein alone is involved. If, in addition to splenomegaly, the mesenteric veins about the ascending and descending colon are distended, it is almost certain that the portal vein, extrahepatically or intrahepatically, is obstructed; under these conditions, any benefit derived from splenectomy may be traced to the reduction in the volume of blood passing through the portal circuit and the subsequent thrombocytosis. Obstructive factors cannot always be demonstrated, even when effective methods are employed. In as many as 30 per cent of the patients in one series[3] no such factors could be demonstrated.

The difficulties that sometimes attend splenectomy in these patients make it desirable, whenever it is possible and indicated, to perform the operation before the stage of widespread infarction and adhesions of the spleen to the parietal peritoneum, omentum and other organs. If adhesions are extensive, it may be preferable to ligate the splenic artery or to clamp the pedicle before attempting to free the spleen from its attachments, because of the abundant bleeding from the surface of adhesions. The raw surfaces should be peritonealized or covered with strips or films of hemostatic absorbable gauze ("gelfoam") and an oxidized cellulose. Autopsy has sometimes disclosed hemorrhage in and about the splenic bed, even though the pedicles were well tied.[8] The blood probably came from the raw, granulating adhesions, which, perhaps, bled little during the operation itself.

Extension or development of thrombosis in other sections of the portal system would seem a more likely complication of splenectomy for this syndrome than for other disorders. The already existing involvement of the veins in the portal circuit, together with the changes in the blood after operation, probably accounts for the high incidence of thrombosis (particularly mesenteric) after splenectomy for Banti's syndrome. Heparinization and early active mobilization should aid in preventing complications. These measures are especially indicated with those patients who have had a striking rise in the platelet count a day or two after the operation (fig. 4).

Hematemesis or melena appearing in the second week after the operation is a bad omen. It nearly always means that the obstruction has not been relieved and that there has been extension of the thrombotic process into most of the branches of the portal vein previously unobstructed.

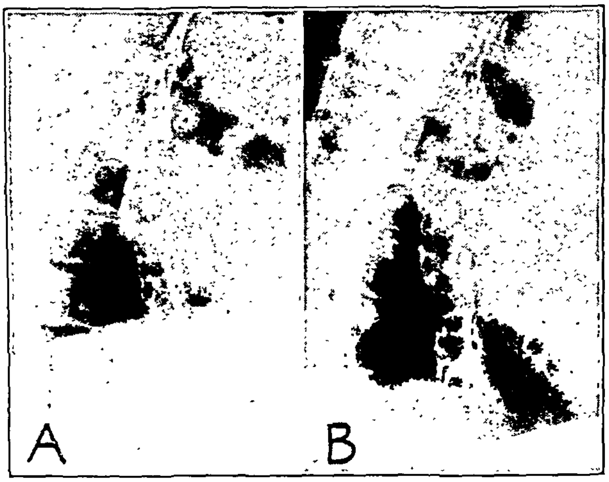


Fig. 4.—*A*, preoperative esophagogram of O. C., a white man 33 years of age, who had four severe attacks of hematemesis in two years, epistaxis and purpura, with platelet counts under 40,000 per cubic millimeter. There was no clinical or operative evidence of cirrhosis. Heparinization was continued for ten days after splenectomy. The patient was living four years after the procedure, with only one attack of hematemesis. He had required no transfusion since the splenectomy. *B*, appearance of esophagogram four years after splenectomy. The platelet count was 320,000 per cubic millimeter; results of other studies of hemostatic function were normal.

Other measures have been tried, usually in association with splenectomy, to relieve the portal hypertension. Omentopexy, either by placing the omentum in contact with an abrased surface of the liver or by suturing the omentum against the split rectus muscle, has not produced uniformly beneficial results.[7] The latest attempts at diversion of the portal flow into the systemic circulation have consisted in anastomosing the portal vein with the vena cava, end to side, using the nonsuture technic with "vitallium" (a cobalt, chromium, molybdenum alloy) tubes.[9] Another variant, anastomosis of the splenic vein with the stump of the left renal vein (after splenectomy and removal of the left kidney) does not seem so effective[9] and involves greater trauma and, probably, a higher risk. The technic of anastomosis of these vessels is exacting and requires a high grade of skill. Results so far reported[10] are encouraging enough to warrant the continued trial of these surgical procedures in critically selected patients.

Correction of the Vascular Defect.—The varicosities themselves are best managed by injecting into them a sclerosing solution through the esophagoscope.[11] It would seem, however, that this procedure should be used in patients who have had splenectomy and who continue to have attacks of hematemesis. Like ligation of the coronorary vein, sclerosis of the natural anastomotic paths,[12] without simultaneous diminution of the blood draining into them, will tend to increase the tension in an already overburdened portal circuit. Some of the patients in my series have been treated with this method by Dr. Louis H. Clerf,[13] who expressed the belief that the method has some value. "In a number of patients whom I have treated over a period of several years there is unquestioned evidence that either the bleeding has been entirely inhibited or the hemorrhages have been minimal. Patients who previously had two or three disabling hemorrhages annually have gone for long periods without even slight bleeding. It is, of course, necessary to reexamine patients several times annually, for the vessels do recanalize and additional injections are required."

Correction of the Defects in the Blood.—One of the defects, thrombopenia, is often corrected by splenectomy. Patients whose platelet count is normal before splenectomy but who have had severe attacks of hematemesis cannot expect much amelioration of the bleeding after the operation; the hemostatic defect was perhaps principally vascular in origin and was apparently inadequately compensated, even when the coagulability and the platelet content of the blood were normal.

The hypoprothrombinemia can be overcome in those patients whose hepatic function is not too far deranged by means of the use of vitamin K preparations and a dietetic regimen designed to enhance hepatic function. These measures, of course, should be a part of the preparation for any of the operative procedures mentioned previously.

SUMMARY

Defects in nearly all portions of the hemostatic mechanism are responsible for the tendency to bleeding in patients with Banti's syndrome.

The defects are thinning and dilatation of the veins serving as tributaries of the portal vein and anastomotic collaterals, ulceration of the gastroesophageal mucosa overlying the veins, thrombopenia and hypoprothrombinemia. Hypertension in the portal circulation increases the already existing stresses on the defective vessels.

Transfusion, administration of a vitamin K preparation and, possibly, tamponade with inflatable bags are measures for the arrest of bleeding from esophageal varices during the acute phase.

---

[8] Plaza Isquierdo, L.: Rev. Policlin. Caracas **12:** 280, 1943.
[9] Blakemore, A. H.: Bull. New York Acad. Med. **22:** 251, 1946.
[10] Whipple.[7] Blakemore.[9]
[11] Craford, C., and Frenkner, P.: Acta oto-laryng. **27:** 442, 1939. Walters, W.; Moersch, H. S., and McKinnon, D. A.: Bleeding Esophageal Varices, Arch. Surg. **41:** 1101 (Nov.) 1940.
[12] Kegaries, D. L.: Surg., Gynec. & Obst. **58:** 46, 1934.
[13] Clerf, L. H.: Personal communication to the author.

Splenectomy, injection of sclerosing solutions into the distended vessels, diversion of the portal blood flow into the systemic circulation by anastomotic operations, and measures designed to support hepatic function have been used to control or to diminish the attacks of hemorrhage.

1025 Walnut Street.

ABSTRACT OF DISCUSSION

Dr. William Dameshek, Boston: Conditions characterized by splenomegaly, and associated with anemia, leukopenia, granulocytopenia, thrombopenia or pancytopenia, may be due to numerous causes, including congestive splenomegaly. For instance, chronic infectious splenomegaly due to tuberculosis, typhoid and malaria, or to Gaucher's disease and a host of other conditions, are associated with various types of cytopenias. It has been the custom indiscriminately to call all these conditions Banti's syndrome. Much is lost in so doing from the standpoint of exact diagnosis. To be sure, if the patient has hematemesis, there is the likelihood that esophageal blood vessels are grossly enlarged and that the splenomegaly is "congestive" in type. There is a syndrome in children which was first fully described by Richard Smith and his co-workers at the Children's Hospital in Boston, in which thrombosis of the splenic vein occurs in association with hemorrhage, not from esophageal varices, but from the vasa brevia of the stomach. After hemorrhage in children who have this condition, the spleen may not be palpable, as Dr. Tocantins pointed out; but, instead of the common posthemorrhagic leukocytosis, there is leukopenia. Thus, in the presence of hematemesis with leukopenia, one should think of the possibility either of this particular syndrome or of the broader syndrome of congestive splenomegaly. Dr. Tocantins has analyzed the hemorrhagic tendency in this disorder. Ordinarily, one thinks simply of the great distention of the collateral blood vessels as the cause of the bleeding, but he has pointed out that the platelets are usually definitely reduced. I believe this reduction of platelets is due to a hypersplenic effect. The spleen, when enlarged, seems to have an effect on the marrow, reducing the production of the platelets from the megakaryocytes. A variety in choice of treatments of congestive splenomegaly with hematemesis is available; for example, one may use no treatment except, perhaps, transfusion, merely tiding the patient over this one particular hematemesis. Curiously, some patients remain free from episodes of bleeding for many years without further treatment. Or one may choose splenectomy. I think splenectomy should be chosen in cases in which pronounced hypersplenic effects, i. e., extreme thrombopenia or leukopenia, are observed. In such cases, removal of the spleen often relieves the hematologic abnormality. In severe cases with recurrent hematemeses, one should seriously consider one of the shunt operations, of which there are two: the splenorenal shunt, as developed by Blakemore and his collaborators, and the portal vein–vena cava anastomosis. This operation is newer and perhaps more difficult technically; but it offers a better possibility of diminishing the great degree of portal hypertension.

Dr. Cecil O. Patterson, Dallas, Texas: We are indebted to Dr. Tocantins for his presentation of a most timely subject. It should be emphasized that in cases of Banti's syndrome, although hemorrhage is periodic, one cannot anticipate which recurrence will be fatal. Of 24 patients whom my colleagues and I treated for hematemesis from esophageal varices, only 1 proved to have gastric varices. In 9 patients varices were confined to the lower third of the esophagus, and in 9, to the lower half; in 8, varices extended throughout the esophagus. Thus, I feel that further emphasis should be placed on the sclerosing therapy of these varices with injections through the esophagoscope. I have, during the past three and one-half years, given sodium morrhuate injection U. S. P. (5 per cent) to 24 patients, 3 to 66 years of age, whose chief presenting complaint was that of massive hematemesis, which proved to be from esophageal varices. Caution is, of course, necessary; for example, anaphylactic reactions to the injectable sclerosing agent have been reported. The esophagus lies directly against the pericardium, the aorta and other vital structures, to which trauma must be avoided. Such hazards are remarkably rare as compared with the known high incidence of fatal hemorrhage when the varices are untreated. Three patients with cirrhosis of the liver were relieved of ascites, with restoration of blood and protein reserves, after injection of sclerosing fluids. No apparent complications, such as hemorrhage or aggravation of ascites, have appeared subsequent to the injections per se. Preferably, after splenectomy, or if necessary before, injection of the varices should also be done, if hematemesis is to be prevented. Four of our patients (ages 6, 19, 13 and 34) had had eighty-one massive hemorrhages after splenectomy, whereas, now three and one-half, three, one, and one year, respectively, since the beginning of sclerosing therapy, an anticipated incidence of hemorrhage of twenty-seven was reduced to two, neither of which was fatal. Dr. Herman J. Moersch (*Proc. Staff Meet., Mayo Clinic* **21**:410 [Oct. 30] 1946) reported on 12 patients, with no recurrence of hemorrhage three to seven years after completion of sclerosing treatment of the esophageal varices. To my knowledge, no other method has been proposed which can so effectively protect these patients from recurrence of hematemesis. In mentioning sclerosing therapy of the esophageal varix, there is no intention of minimizing the over-all care of patients with Banti's syndrome, so capably discussed by Dr. Tocantins.

Dr. C. J. Watson, Minneapolis: Dr. Tocantins, how frequently in your series was actual ulceration of the esophageal varices encountered? Do you think this ulceration is related to peptic digestion with the gastric juice? In my experience, ulceration has been encountered infrequently. Often, in fact, it is difficult to find the point from which the bleeding occurs, and if one does find it, the lesion consists only of a small linear slit, a true ulcer being unusual.

Dr. Leandro M. Tocantins, Philadelphia: With reference to Dr. Dameshek's objection to use of the term "Banti's syndrome," I agree with him in part, but it seems to me, after consideration of all the factors, that the term still has its uses as a purely clinical designation. The diagnosis of Banti's syndrome, as it was stressed during the presentation, is mostly one of exclusion of conditions that resemble it but have a different pathogenesis. A number of entities, as Dr. Dameshek said, include many of the clinical features of this syndrome, but when these conditions are accompanied with overwhelming hemorrhages from the gastrointestinal tract, and particularly with the vascular changes that were mentioned, a clinical diagnosis of Banti's syndrome may be made, provided other things, such as leukemias and the various types of anemia and causes of splenomegaly, are excluded. Dr. Patterson's figures are impressive, and I am assured by Dr. Louis Clerf, the bronchoscopist at Jefferson Medical College Hospital, that he is favorably impressed too, with the use of sclerosing injections for esophageal varices. I should like to emphasize that these injections should follow or accompany splenectomy and should not be undertaken before it, since the vascular sclerosis deprives the patient of some of the natural anastomotic channels he has built up. As to the presence of ulcerations over the varicosities themselves, I recall in my own experience 1 such case, encountered at autopsy. The ulcerations were, of course, detectable, because it is possible at autopsy to visualize the entire stomach and to make a careful search for them, whereas such a search is obviously impossible during life. Dr. McIndoe refers to these ulcerations as a not uncommon occurrence in this disorder. That is all I know of the actual frequency of this complication. Occasionally, one hears of the demonstration of gastric ulcers with roentgenographic methods in patients whose condition is later diagnosed as this syndrome.

Clinical Notes, Suggestions and New Instruments

MEDIASTINOTOMY IN SPONTANEOUS MEDIASTINAL EMPHYSEMA

JAMES R. KARNS, M.D.
and
EDWIN O. DAUE Jr., M.D.
Baltimore

Mediastinal emphysema has been recognized as a clinical entity for over one hundred years, but it was not until 1937 that Hamman[1] called attention to the spontaneous occurrence of this condition and the criteria necessary for its diagnosis. Since Hamman's lucid descriptions[2] there have been reports of numerous cases. The majority of these have been self limited and of short duration. On rare occasions the accumulation of air in the mediastinum has been great enough to produce severe and sometimes fatal impairment of the circulatory system. When this occurs, immediate surgical intervention becomes necessary. The purpose of this report is to present a case of acute spontaneous mediastinal emphysema which required mediastinotomy.

PATHOGENESIS

In 1930, Joannides and Tsoulsos,[3] while working with the problem of air embolism, noted the occurrence of mediastinal and interstitial emphysema and correctly speculated that anything producing increased intrapulmonic pressure could cause mediastinal emphysema. Macklin[4] clearly outlined and proved the accepted pathogenesis. The process begins with rupture of an alveolus within the lung and is furthered by air dissecting along perivascular sheaths to the hilus and into the mediastinum. The etiologic factor may be positive pressure anesthesia, the second stage of labor, influenza, bronchopneumonia, bronchial asthma, atelectasis, straining at stool, heavy lifting, trauma to the chest wall, penetrating wounds of the trachea or bronchus, tracheotomy, artificial pneumothorax or foreign bodies in the tracheobronchial tree.[5]

CLINICAL PICTURE

The symptoms of the condition are one or more of the following: Pain in the chest, vague discomfort or sensation of constriction, dyspnea and cyanosis. The pain may be substernal or precordial and may radiate to the back, shoulder or arm, often simulating the pain of angina pectoris. In lesser degrees a vague substernal discomfort or feeling of constriction may occur. It may be aggravated by respiration, motion or changes in position. Dyspnea and cyanosis are usually not pronounced unless the amount of air in the mediastinum is great or unless there is an associated pneumothorax.

The most characteristic feature in physical examination is the finding of a peculiar sound heard over the precordium described as "crackling, bubbling or churning." This sound is synchronous with the heart beat and is known as Hamman's sign. Other important but less diagnostic signs are: obliteration of cardiac dulness, engorged veins of the neck, face and chest, pneumothorax and roentgenographic evidence of air in the mediastinum. Roentgenographically mediastinal emphysema may be demonstrated in the anterior mediastinum, around the pericardium in the middle mediastinum or along the larger bronchi in the posterior mediastinum. A frequent and helpful finding is an associated pneumothorax.

The emphysema may extend to the neck, trunk, arms, face and at times even the lower extremities. Usually the temperature and pulse rate are not elevated. Electrocardiograms, white blood cell counts and sedimentation rates remain normal.

Awareness of this condition and knowledge of the diagnostic criteria as set forth by Hamman will assure the differentiation of this disease from acute pericarditis, angina pectoris, myocardial infarction, pleurisy, spontaneous pneumothorax and the various causes of cardiorespiratory distress in infants. The necessity of accurate differentiation is self evident as one considers the gravity of the latter diseases.

PROGNOSIS AND TREATMENT

The prognosis in uncomplicated spontaneous mediastinal emphysema is good and requires no more than symptomatic treatment for a short period. Only if the pressure in the mediastinum becomes great, do serious complications result. This more often develops in infants and may lead to sudden death.

Increasing dyspnea, cyanosis and venous congestion are signs of cardiorespiratory distress resulting from progressive mediastinal pressure. When this appears, immediate operation is imperative. The first recorded mediastinotomy was performed by Tiegel[6] in 1911. He supplemented his vertical suprasternal incision by aspiration with bell jar suction. Since that time various methods have been used to provide egress for air trapped in the mediastinum. Incisions have been made in the following regions: the first two intercostal spaces, supraclavicular fossae, in the suprasternal notch[7] and below the xiphoid process. In children, needle aspiration has been used instead of opening the thorax.

REPORT OF A CASE

N. C., a white man aged 57, was admitted to the University Hospital complaining of swelling of the neck and face and difficult breathing.

His past history revealed asthmatic attacks for twelve years and an illness, suspected of being tuberculosis, two years before admission. At this time he had fever and loss of weight but repeated roentgenograms of the chest showed nothing indicative of tuberculosis.

Seventeen hours before admission the patient was awakened in the early morning by a severe coughing attack during which he had a sudden, severe, sharp pain in the upper anterior portion of the left side of the chest and dyspnea. The dyspnea was not severe and seemed to be caused by restriction of breathing due to pleuritic pain. Eleven or twelve hours after onset, his neck and face began to swell and breathing become more difficult.

Physical examination on admission revealed a normally developed white man sitting upright in bed in considerable respiratory distress. His face, up to the zygomatic arch, neck, left forearm, both arms, thighs, scrotum, chest and abdomen were ballooned up by subcutaneous emphysema. His skin and mucous membranes were moderately cyanotic. Veins of the neck, face and upper part of the chest were distended but not pulsating. Crepitus was present to the level of the zygomatic arches anteriorly and to the occipital protuberance posteriorly. The conjunctivas and lower lids were slightly puffy. The trachea was deviated to the right. A greater amount of subcutaneous emphysema was seen over the left side of the chest than the right and respiratory excursions of the left side of the chest were limited. The percussion note was hyper-resonant throughout. Breath sounds were distant. Voice sounds were dimin-

---

From the Departments of Medicine and Surgery, University of Maryland School of Medicine.

[1] Hamman, L.: Spontaneous Interstitial Emphysema of the Lungs, Tr. A. Am. Physicians **52:** 311-319, 1937.

[2] Footnote 1. Hamman, L.: Spontaneous Mediastinal Emphysema, Bull. Johns Hopkins Hosp. **64:** 1-21 (Jan.) 1939.

[3] Joannides, M., and Tsoulsos, G. D.: The Etiology of Interstitial and Mediastinal Emphysema, Arch. Surg. **21:** 333-339 (Aug.) 1930.

[4] Macklin, C. C.: Transport of Air Along Sheaths of Pulmonic Blood Vessels from Alveoli to Mediastinum: Clinical Implications, Arch. Int. Med. **64:** 913-926 (Nov.) 1939.

[5] Wallace, F. T.: Acute Pulmonary Edema Associated with Mediastinal Emphysema, Surgery **19:** 430-433 (March) 1946. Schwartz, B. M.; McIlroy, G. H., and Warren, H. A.: Acute Mediastinal Emphysema, Ann. Int. Med. **35:** 663-676 (Oct.) 1946. Morey, J. B., and Sosman, M. C.: Spontaneous Mediastinal Emphysema, Radiology **32:** 19-22 (Jan.) 1939.

[6] Tiegel, M.: Ein einfaches Verfahren zur Bekampfung des mediastinal Emphysems, Zentralbl. f. Chir. **38:** 420-423 (March) 1911.

[7] Hammond, A. E.: Emergency Cervical Mediastinotomy in Case of Massive Mediastinal and Subcutaneous Emphysema Secondary to Removal of Foreign Body from Bronchus, Ann. Otol., Rhin. & Laryng. **53:** 829-836 (Dec.) 1944.

ished over the posterior surface of the left side of the chest. Few scattered rhonchi were heard over the right lung. The cardiac impulse was faintly palpable along the right border of the sternum in the fourth interspace. The heart could not be outlined by percussion. Heart sounds were rhythmic and distant. Crackling sounds were heard over the precordium during cardiac systole and diastole. The blood pressure was 120 mm. of mercury systolic and 80 mm. diastolic in both arms. The temperature was 99 F.; pulse rate, 100 per minute, and respiratory rate, 28 per minute. The white blood cell count was 16,650 per cubic millimeter.

A roentgenogram of the chest disclosed decided subcutaneous emphysema, a left pneumothorax, and partial collapse of the upper two thirds of the left lung. The diaphragm was depressed bilaterally. There was a shift of the heart, trachea and mediastinum to the right. A thin layer of mediastinal air was present in the region of the aortic knob

Two hours after admission, the patient's condition appeared critical. He was anxious and his cyanosis and dyspnea had increased greatly. The subcutaneous emphysema had spread noticeably. Both eyelids were swollen sufficiently to prevent opening, and the skin over the suprasternal notch was rather tense. He was taken to the operating room for mediastinotomy.

With local anesthesia, a linear incision was made in the lower portion of the midline of the neck which extended from the inferior border of the thyroid cartilage to the manubrium sterni. The first layer of deep fascia was incised. In the lower portion of the neck, where this splits to encase the manubrium, an incision was made in the posterior leaf which gave access to the superior mediastinum. At this level air bubbled freely into the incision. Drainage was facilitated by gentle digital separation in both lateral directions and inferiorly into the superior mediastinum for a distance of 1 inch (2.54 cm.). The pretracheal fascia was bulging moderately with trapped air, so it also was incised in the vertical axis below the thyroid isthmus, allowing retained air to escape. The wound was left open, with the raw edges loosely covered with petrolatum gauze, and a light dressing of sterile gauze. Improvement of the dyspnea and cyanosis was immediate. The eyelids were aspirated with a 20 gage needle. On return to the ward the pulse rate had slowed to 84 per minute and respirations to 22 per minute.

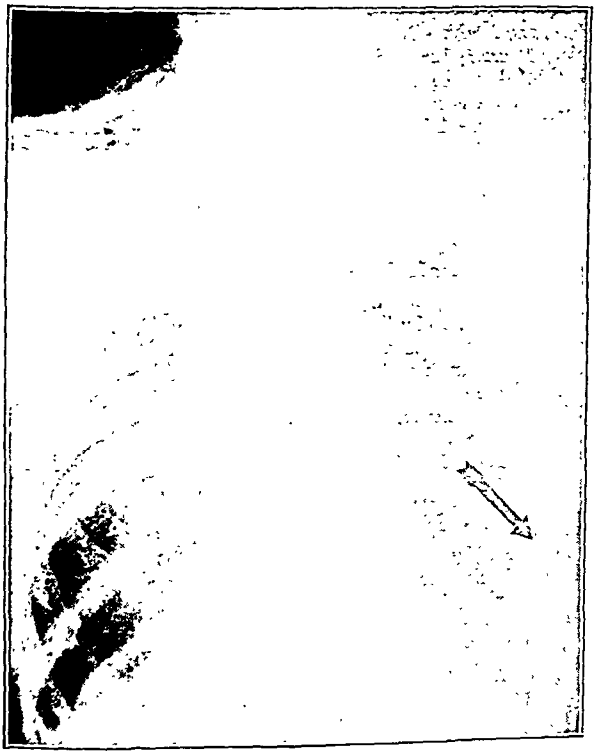


Fig. 1.—Arrow indicates pneumothorax.

After operation, penicillin was given as a preventive measure. The patient was kept in an oxygen tent for eight hours. On the first postoperative day the temperature rose to 100 F. and on the second day to 101 F. On the third postoperative day the penicillin dosage was increased from 30,000 to 50,000 units every three hours. When this proved ineffectual, sulfadiazine was given. The temperature then gradually subsided to normal. The patient's general condition steadily improved, and except for a recurrence of low grade fever convalescence was uneventful. The leukocyte count subsided gradually and three weeks after admission was 6,550 per cubic millimeter. Serial roentgenograms revealed rapid absorption of the pneumothorax, emphysema and the bilateral pleural effusions which developed after admission. The operative wound remained free of evident infection and gradually healed, leaving a normal-sized scar.

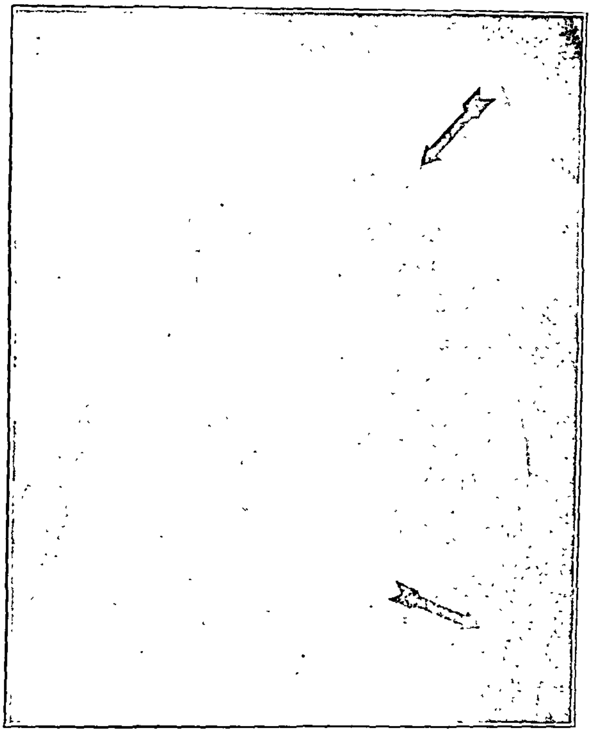


Fig. 2.—Oblique view. Arrows indicate pneumothorax.

COMMENT

This case presents the problem of severe spontaneous mediastinal emphysema with rapidly progressing respiratory and circulatory embarrassment. Pneumothorax causing 30 per cent collapse of the upper two thirds of the left lung was also present but was considered a minimal factor in the symptoms. Mediastinotomy was performed because of the increasing gravity of the patient's condition.

Suprasternal incision, either vertical or horizontal, is the operation of choice. It is our opinion that the vertical incision is more desirable, since it offers less opportunity for wound edges to adhere or for soft tissues to collapse into the wound, thus promoting elimination of air over a longer period of time. Through such an incision blunt dissection of the lateral fascial planes is more easily accomplished. The main disadvantage to a vertical incision is cosmetic, for the resultant scar is larger and is at right angles to the normal lines of skin tension.

SUMMARY

A case of spontaneous mediastinal emphysema requiring mediastinotomy is presented. The clinical picture, diagnosis and management are discussed.

SICKLE CELL DISEASE WITH SEVERE HEMATURIA SIMULATING RENAL NEOPLASM

MARTIN S. ABEL, M.D.
and
CHESTER R. BROWN, M.D.
New York

Since Herrick's first reported case,[1] sickle cell disease has become a well described clinical and pathologic entity. The usual renal manifestations are of minor importance until late in the disease. Traces of albumin or urobilin or a few casts are found in the urine in some cases; in others the urine is essentially normal.[2]

The lesions in the kidneys, as elsewhere, stem from the fundamental tendency of the abnormally shaped erythrocytes to become blocked up in the small arterioles and capillaries. Early in the disease, renal sections exhibit vascular stasis and congestion. Later, after multiple small thromboses and infarctions, the kidneys show more or less extensive fibrosis with deposition of blood pigments.[2c] As more and more glomeruli are destroyed, renal function deteriorates and there may be terminal uremia.[3]

We could find only one report in the literature in which gross hematuria was a prominent feature of the disease: Bauer[4] reported the case of a 10 year old Negro girl who died of massive necrosis of the renal cortex caused by impaction of sickled cells in the small renal vessels. A patient of Murphy and Shapiro,[3] who died of renal insufficiency, evidenced definite hematuria on only one occasion. Yater[5] and Diggs[6] have not encountered gross hematuria in their wide experience with sickle cell anemia. A few red cells were occasionally seen in the urine of their patients, apparently associated with acute episodes of nephritis or small infarcts.

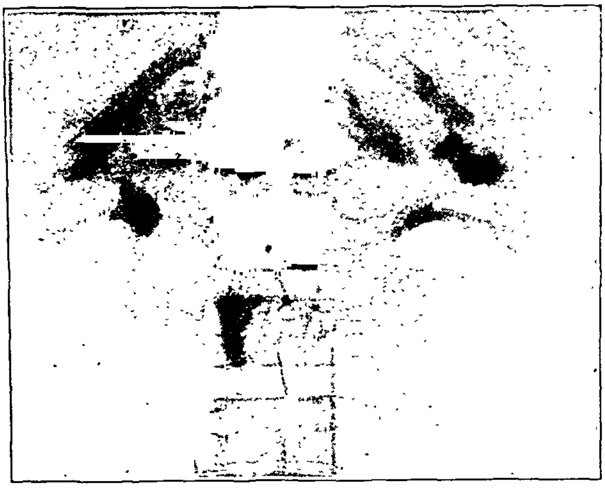


Fig. 1.—Retrograde pyelogram showing filling defect in the left renal pelvis and the upper calyx. This defect was present and unchanged in three pyelograms taken over a period of five weeks.

We encountered a patient presenting severe hematuria, with deformity of the renal pelvis simulating a pelvic tumor. Nephrectomy was performed.

REPORT OF CASE

W. M., a Negro soldier aged [illegible], was admitted to a United States Army General Hospital Dec. 4, 1942 with chief complaints of sore throat and pain in the chest. The patient had also had sudden gross hematuria in August 1942, unaccompanied by pain, dysuria, nocturia or polyuria. His urine had remained "dark" thereafter. The patient had been a railroad worker prior to entry into service and had had no severe illnesses or operations. No history of use of drugs was elicited.

Physical Examination.—The patient was a well developed, robust Negro with mild pharyngitis and bronchitis. His temperature was 98.2 F. and his blood pressure 130 systolic and 70 diastolic. Neither kidney was palpable. There was no lumbar or costovertebral angle tenderness. There were no other significant findings.

Laboratory Studies.—The blood count showed 4,000,000 red blood cells, 81 per cent hemoglobin and 8,500 white blood cells, with normal differential count. The chemistry of the blood was within normal limits. The Van den Bergh reaction was negative. The icteric index was 4. The urine was grossly bloody and contained many red and white blood cells on twenty-five examinations. After nephrectomy on March 12, 1943, repeated moist sealed drop preparations failed to reveal any sickling of red blood cells.

Roentgen Studies.—Chest, Dec. 5, 1942: The heart and lungs were within normal limits. In a survey roentgenogram of the abdomen on December 24 no radio-opaque calculi were noted. The right kidney was normal in size, shape and position. The left kidney was obscured by gas in the colon. An intravenous pyelogram on Feb. 3, 1943 showed incomplete filling of the middle and upper major calyces on the left. In a retrograde pyelogram on February 24 (fig. 1), the pelvis, calyces and ureter on the right appeared entirely normal. There was a filling defect on the left affecting the upper calyx and the superior portion of the pelvis. In a second retrograde pyelogram, on March 8, the filling defect on the left was seen unchanged from its condition on February 24. The possibility of tumor of the left renal pelvis was considered.

Progress Notes.—On January 5 the patient had a severe, persistent cramplike pain in the left costovertebral angle accompanied by severe hematuria. Cystoscopic examinations on February 24 and March 8 revealed grossly bloody urine coming from the left ureteral orifice.

On March 12, in consideration of the roentgen observations and the persistent hematuria, with and without pain, a left nephrectomy was performed. The preoperative diagnosis was renal neoplasm.

The patient was discharged on April 14 after an uneventful convalescence, completely asymptomatic.

Report on Surgical Specimen.—Gross Examination: The kidney measured 10 by 7 by 6 cm. The capsule stripped easily. The cut surface of the cortex was smooth. No unusual changes were noted other than numerous hemorrhages into the mucosal surface of the pelvis. No neoplasm was seen.

Microscopic Examination: There were numerous sickled erythrocytes in all the renal arterioles. The vessels of the pelvis were considerably dilated and filled with sickled and agglutinated red blood cells. A few vessels near the mucosal surface of the pelvis showed partially necrotic walls which were traversed and surrounded by masses of the sickled erythrocytes (fig. 2). The other parts of the kidney showed no unusual changes except for occasional organized thrombi within arterioles.

COMMENT

The clinical aspects of this case presented several unusual features: First, the presence of localized lumbar pain unaccompanied by other symptoms of sickle cell disease is most unusual. The patient of Murphy and Shapiro,[3] dying of uremia caused by multiple capillary infarcts in the kidneys, presented no signs or symptoms referable to the kidney until late in the disease, and never exhibited the specific lumbar pain and tenderness experienced by our patient. Unfortunately Bauer[4] did not report the clinical aspects of his case with renal necrosis. During several months' observation, our patient never displayed the usual manifestations of sickle cell disease.

The roentgenologic and clinical diagnosis of renal tumor is worthy of note. The filling defect persisted unchanged for at least a month and was presumably caused by a blood clot. In the absence of a history of trauma or a demonstrable cause of bleeding, renal pelvic tumor was diagnosed. The intermittent pain was probably caused by detached bits of clot causing transient ureteral obstruction.

---

[1] Herrick, J. B.: Peculiar Elongated and Sickle-Shaped Red Corpuscles in a Case of Severe Anemia, Arch. Int. Med. **6:** 517-521 (Nov.) 1910.

[2] (*a*) Leivy, F. E., and Schnabel, T. G.: Abdominal Crises in Sickle Cell Anemia, Am. J. M. Sc. **183:** 381-391 (March) 1932. (*b*) Tomlinson, W. J.: Abdominal Crises in Uncomplicated Sickle Cell Anemia, ibid. **209:** 722-741 (June) 1945. (*c*) Yater, W. M., and Hansmann, G. H.: Sickle Cell Anemia: A New Cause of Cor Pulmonale, ibid. **191:** 474-483 (April) 1936.

[3] Murphy, R. C., Jr., and Shapiro, S.: The Pathology of Sickle Cell Disease, Ann. Int. Med. **23:** 376-397 (Sept.) 1945.

[4] Bauer, J.: Sickle Cell Disease, Arch. Surg. **41:** 1344-1362 (Dec.) 1940.

[5] Yater, W. M.: Personal communication to the author.

[6] Diggs, L. W.: Personal communication to the author.

Finally, we should like to call attention to the absence of hemolytic crises and anemia in our patient. At no time was there a pronounced anemia, and the mild secondary anemia could be easily explained by the evident hematuria. Urobilin was never demonstrated in the urine.

Our inability to demonstrate the sickling tendency in the peripheral blood despite the presence of large numbers of sickled erythrocytes in the kidney sections is most unusual. The reverse is often true, that sickled cells cannot be demonstrated in tissue section even though evident in samples of the peripheral blood.[7] Wintrobe[8] expressed the opinion that decreased oxygen tension may be the factor that causes both the corpuscular distortion and the hemolytic crises in patients with sickle cell disease. Sickle cells are not regularly found in the circulation of nonanemic patients with sickle cell disease. If anoxia is the important factor, we may conjecture that for some obscure cause a purely local decrease in oxygen tension was attained only in the left kidney sufficient to make manifest the latent sickling tendency and bring about the unfortunate sequelae.

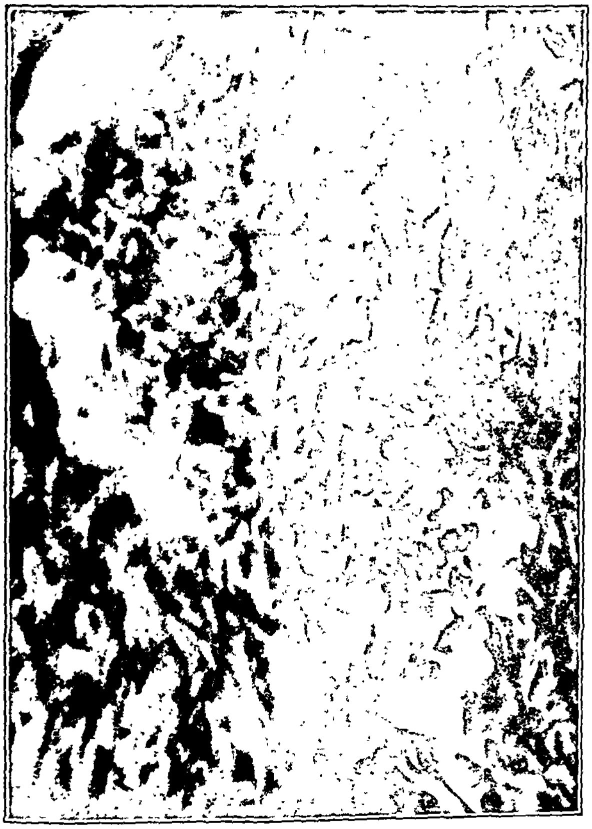


Fig. 2.—Section of left kidney near pelvis, reproduced from a high power photomicrograph showing a necrotic vessel with numerous sickled red blood cells within the lumen, in the wall and outside the vessel.

SUMMARY

A case history has been presented of a patient with extensive necrosis of the renal pelvis caused by obstruction of renal vessels by sickled red blood cells. There was severe hematuria and lumbar pain and deformity of the renal pelvis. The case was unusual because the findings led to an erroneous diagnosis of renal tumor and because there was no evidence to suggest the diagnosis of sickle cell disease prior to nephrectomy.

241 Central Park West (Dr. Abel).
4418 Waldo Avenue (Dr. Brown).

---

[7] Diggs, L. W., and Ching, R. E.: The Pathology of Sickle Cell Anemia, South. M. J. 27:839-844 (Oct.) 1934.

[8] Wintrobe, M. M.: Clinical Hematology, ed. 2, Philadelphia, Lea & Febiger, 1946, p. 517.

Council on Physical Medicine

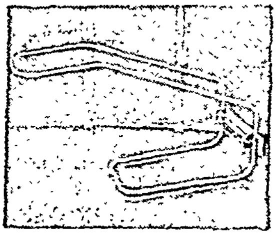
The Council on Physical Medicine has authorized publication of the following reports. Howard A. Carter, *Secretary.*

VALVERDE VASCULATOR (BAKER) ACCEPTABLE

Manufacturer: Valverde Laboratories, 252 Lafayette Street, New York.

The Valverde Vasculator is a device for holding the bedclothes up out of contact with a patient's lower extremities while maintaining a thermostatically controlled degree of warmth in the space or tent so formed. Its essential parts are (1) a strong framework of curved, chromium-plated steel tubing and (2) a pair of long, tubular, incandescent lights controlled by a thermostat.

Three features distinguish this apparatus from the conventional baker or heat cradle. One is the strength and simplicity of its design. The second is the roominess of the space under it, which permits the patient to draw his feet up occasionally by raising his knees and also permits attendants an unobstructed view of either extremity on raising the bedclothes. The third is the thermostatic control, which is generally set at 94 F. (34.5 C.).



Valverde Vasculator.

The investigator for the Council reported the apparatus to be of good workmanship. To turn off the lights it is necessary to pull out the plug. The temperature control and metal guards about the two heating elements greatly reduce the danger of burns to the patient.

The Council on Physical Medicine voted to include the Valverde Vasculator in its list of accepted devices.

DREAM SUNLAMP ACCEPTABLE

Manufacturer: Hytron Radio & Electronics Corporation, 76 Lafayette Street, Salem, Mass.

Distributor: Associated Merchandising Corporation, 1440 Broadway, New York 18.

The Dream Sunlamp is identical with the Hytron Sunlamp Type A and similar in construction to the General Electric and Westinghouse lamps of Type RS. It contains a mercury arc tube and ballast coils. The mercury arc tube contains mercury, a starting coil and electrodes. The ballast coils consist of tungsten filaments which limit the current passing through the mercury arc tube. The ballast coils become heated and then radiate infrared and visible light, while the mercury arc tube radiates ultraviolet. The outer conical glass bulb, or glass container, enclosing the sealed space in which lie the mercury arc tube and ballast coils, is made of a type of glass called "Corning 776," which in proper thickness cuts off sharply the transmission of ultraviolet wavelengths below 2,800 angstroms. The inside of the conical part of the bulb is coated with aluminum to form a reflector.

The statements of the firm regarding the exposure needed to produce erythema have been verified by the Council. For initial applications the recommended exposure is a maximum of four minutes at a distance not less than 61 cm. (24 inches).

The firm states that: "The name 'Dream' is a copyrighted trade mark used in connection with a full line of home appliances."

The Council on Physical Medicine voted to include the Dream Sunlamp distributed by the Associated Merchandising Corporation in its list of accepted devices.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Twelve dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, FEBRUARY 28, 1948

IS THERE A SHORTAGE OF PHYSICIANS?

The pronouncement by Dr. Thomas Parran, surgeon general of the U. S. Public Health Service,[1] that the country is faced with a shortage of 30,000 to 50,000 physicians by 1960 has recently been reemphasized by the federal security administrator, Mr. Oscar Ewing. Many government officials, as well as the public, have been led to believe that urgent measures are required to prevent a grave shortage of medical care. Alarm is unwarranted and unjustified. Actually the number of physicians is increasing at a relatively more rapid rate than is the general population. Ten years ago the statistics indicated one active physician for every 800 persons in this country; at present there is one physician for every 760 persons; by 1960 there will be one physician for every 700 persons or fewer. More physicians are currently being trained in this country than at any time in our history. All indications point to a still further increase in the number of physicians graduated each year.

During the period 1920 to 1939 the average number of physicians graduated annually in this country was 4,256. For the eight year period 1940 to 1947 when, due to the accelerated program, nine classes were graduated, the average size of the graduating classes was 5,379. Based on the present capacity of the medical schools, the average number of physicians who will be graduated each year for the next twelve years can be conservatively estimated at 5,500; a considerably larger number may actually be anticipated as a result of expansions that are already under way. The annual production of physicians is now approximately 1,250, or about 30 per cent greater than the average annual production during the period 1920 to 1939.

In estimating a shortage of 30,000 physicians by 1960 Dr. Parran made the incorrect assumption that only 111,000 physicians would be graduated during the period 1940 to 1960 and that 77,000 physicians would die or retire during the same years. A strange error was the subtraction of certain physicians twice from the ranks of those active, once when they retired and a second time when they died. After correcting for these errors and the reduced requirements of the government services, the Public Health Service by inference, but not explicitly, revised downward its estimated shortage of physicians from 30,000 to 20,000.[2] A deficit of 20,000 physicians in 1960 would be less than 9 per cent of the total force of physicians who will be active on that date under the current rate of production.

In reaching an anticipated shortage of 55,000 physicians by 1960 the Public Health Service[2] took the twelve states with the highest ratio of physicians to population and calculated the additional number of physicians needed to bring the remaining thirty-six states up to the average of the upper twelve. This exercise in arithmetic makes the doubtful assumption that the twelve states used as a standard do not have more physicians than they actually need to provide their residents with adequate medical care. A significant number of the physicians in the twelve states with the highest ratio of physicians to population hold teaching, research and administrative positions that do not exist and for which there is no need in the other thirty-six states.

Even Dr. Parran's lower estimate of a deficit of 20,000 physicians used as a yardstick concepts of medical service that are not realistic in terms of what the nation now, or in the period under consideration, is likely to demand or support. If the needs for additional physicians in certain categories listed by the Public Health Service were to be met, the need for physicians in other situations would be appreciably lessened. The employment of an additional 13,000 physicians by the federal services, the employment of an additional 5,000 physicians in full time local health departments and new mental and tuberculosis hospitals, and the appointment of an additional 16,000 specialists to the staffs of new general hospitals would probably decrease considerably the need for physicians otherwise required to provide medical service.

Associated with the publicity about the shortage of physicians have been proposals which would force our medical schools to adopt measures that would impair the quality of medical education. Thus the spokesman for the Public Health Service said that the country would need to increase its present output of physicians by 50 per cent or more during the intervening years to meet the deficit anticipated by 1960. Such a move could be accomplished only by a tremendous lowering of the standards of medical education that have been developed for the protection of the public during the past forty years. Medical schools in this country are now accepting the maximum number of students that can be trained with the personnel and facilities available.

---

[1] Parran, T.: J. A. M. A. **133:** 1047-1049 (April 12) 1947.

[2] Parran, T.: J. A. Am. M. Coll. **23:** 18, 1948.

Facilities for providing a high quality of medical education cannot be developed overnight. Substandard medical schools have now almost completely disappeared from the medical scene in this country; any move that would encourage their reappearance must be condemned. The facilities for medical education in this country are undergoing a definite, well ordered expansion. Four new four year schools have been fully developed during the past few years; two more, the University of Washington and the University of California at Los Angeles, are in the process of development; several of the schools of the basic medical sciences are making definite plans to become four year schools, and the establishment of entirely new schools is under active consideration in a number of states. Such expansions, based on sound planning, will satisfactorily eliminate any actual shortage of physicians that may be imminent.

Advocates of radical proposals which would deteriorate standards of medical education do not hesitate to imply that the American Medical Association for economic reasons limits the production of physicians in this country. This charge is entirely without basis! The Association has never sought to limit the number of properly conducted medical schools in this country. Even if the Association desired to reduce either the schools or the number of students it could not do so. Through the Council on Medical Education and Hospitals, the Association has always placed its support and assistance at the service of any responsible group interested in developing a new medical school. On the infrequent occasions when the Association has made recommendations to any school concerning the size of its enrolment, the recommendation has been based wholly on a concern that the school not attempt to train more students than it could properly handle. No private or official body has the power to control the production of physicians in the United States. An increased production of physicians will require enterprise in establishing medical schools and the provision of sufficient funds to supply a sound educational program.

High standards of medical education are fundamental to good medical care. The standards of medical education in this country have been raised from deplorable mediocrity to the point where they are the best in the world. The Public Health Service is concerned with the health of our nation. How can such an agency support a movement that could result in medical care of inferior quality? Conceivably the statistics and estimates regarding the number of physicians needed are being abused for political purposes, exactly as were the selective service statistics until the clear analyses by Freedman became available. The United States Public Health Service should restudy its figures and its estimates, and if its estimates of any impending deficit of physicians can be reduced, it should inform the public that any shortage that may reasonably be forecast is not critical to the nation's health. Let them tell the people that the medical schools of the United States now produce the best trained physicians to be found anywhere in the world. Far more will be lost than gained if the standards of medical education are sacrificed to an abrupt and unnecessary increase in the output of physicians.

The Public Health Service might well join with other groups that have at least an equal concern for the nation's health in the conduct of a calm, scientific appraisal of the nation's needs for physicians and how these needs may best be met without impairing the quality of medical education and medical care. Such a study could serve as the basis for an effort supported by all concerned with the training and production of physicians to develop a sound and effective program fitted to the actual needs of the country. Such an effort is difficult as long as propagandists continue needlessly to alarm the public and to make medical education the center of disagreeable and wholly unnecessary controversy.

THE SIGNIFICANCE OF URINARY COPROPORPHYRINS

The porphyrins include many complex chemical compounds of fundamental importance in living organisms. Biologic substances that contain porphyrin derivatives include hemoglobin and similar respiratory pigments, the cytochromes, the enzyme catalase and chlorophyll in plants. Porphyrins occur in plant and animal tissues, including those of man. Coproporphyrin[1] was first found in the feces of a now famous case of congenital porphyria, Petry, by Hans Fischer[2] in 1915. Because the porphyrin was present almost entirely in feces, Fischer unfortunately called the substance "coproporphyrin." Subsequently, coproporphyrin was found in the urine in relatively large amounts in certain conditions. For the same reason, Fischer applied the name "uroporphyrin" to a porphyrin found in the urine in his case of congenital porphyria. Later work also demonstrated the presence of this porphyrin in the feces in a variety of conditions. Continuing his work on the porphyrins excreted in congenital porphyria, Fischer finally succeeded in crystallizing both coproporphyrin and uroporphyrin. Then in a series of brilliant chemical studies, for which Fischer was awarded the Nobel Prize in 1930, he demonstrated that these two porphyrins differed in chemical structure from those found in the urine and feces of normal subjects. The substances were isomers differing only in the positions of two small portions of the molecule. Fischer gave the name type 1 to the porphyrin found in cases of congenital porphyria and type 3 to that found in the normal person. Subsequently, this has been referred to as the "dualism" of the porphyrins.

---

[1] Watson, C. J., and Larson, E. A.: The Urinary Coproporphyrins in Health and Disease, Physiol. Rev. **27**: 478, 1947.

[2] Fischer, H.: Ueber das Kotporphyrin. II. Mitteilung über das Urinporphyrin, Ztschr. f. physiol. Chem. **96**: 148, 1915.

Studies since Fischer's classic work have verified the presence of coproporphyrin types 1 and 3 (as well as uroporphyrin) in the urine and feces and have established to some extent the amounts and types in a variety of conditions. Later, in normal human subjects, Watson and his co-workers at the University of Minnesota[1] have found that 14 to 99 micrograms of coproporphyrin is excreted in the urine in twenty-four hours, approximately 80 per cent being the type 1 isomer and 20 per cent the type 3. This amount and the ratio of the two types of porphyrins are considerably altered in certain pathologic conditions. In certain diseases of the liver, including hepatitis with jaundice, cirrhosis and mechanical jaundice, the amount of urinary coproporphyrin may be definitely increased. The increase may be a result of impaired excretory hepatic function, since some coproporphyrin is excreted normally in the bile.[3] An increased excretion of coproporphyrin in the urine is also found in chronic alcoholic addicts; in infectious diseases including pneumonia, pulmonary abscess and poliomyelitis; in pellagra, and in poisoning from lead, arsenic or certain drugs including sulfonamide compounds, acetanilid, phenacetin, acetylsalicylic acid, ether, paraldehyde, chloralhydrate and morphine. Inconstant increases in urinary coproporphyrin excretion have been demonstrated in pernicious anemia, aplastic anemia, hemolytic anemia and leukemia. The porphyrin excreted in the urine in increased amounts in the foregoing conditions appears to be type 3. This is particularly true in lead poisoning, in which as much as 8 milligrams of coproporphyrin, predominantly type 3, have been found in twenty-four hour samples of urine.

In addition to the pathologic states mentioned, large increases in urinary coproporphyrin are found in the "porphyrias." As mentioned previously, excessive amounts of type 1 coproporphyrin are found in the urine of cases of congenital (light sensitive) porphyria. In so-called acute intermittent porphyria, which is characterized by abdominal or nervous manifestations, the type 3 isomer appears to predominate. As much as 2,582 micrograms of coproporphyrin has been reported in the urine in twenty-four hours in 1 case of acute porphyria. Even larger amounts of uroporphyrin, as much as 147 mg., have been isolated from daily samples of urine.

An explanation of the increase in urinary coproporphyrin in the foregoing clinical conditions is difficult. In the porphyrias the explanation appears to be that there is some inborn error of metabolism, which results in an increased synthesis and, hence, in urinary excretion of coproporphyrin. In lead poisoning, and perhaps in other toxic conditions, the normal combination of protoporphyrin with iron to form hemoglobin may be blocked[4] by lead; the nonutilized porphyrin is then converted to coproporphyrin and excreted in the urine. In hepatic diseases the explanation of the increased coproporphyrinuria may be, as previously mentioned, an impairment of the hepatic excretory function.

Although there is much information available regarding the amounts and types of coproporphyrin excreted in varying conditions, the mode of formation and exact physiologic role of this substance is poorly understood. The significance of the coproporphyrin found in brain and nervous tissue,[5] for example, is yet to be determined.

BRITISH PHYSICIANS REJECT NATIONALIZED MEDICINE

In a plebiscite conducted by the British Medical Association 86 per cent of British physicians voted against working for the universal free medical service scheme that has been scheduled to take effect on July 5. Of course the scheme is not really free, since every tax payer in England contributes toward its support. If the physicians stand firm in their refusal to work, the British government would have only 3,560 general practitioners and 971 consultants to provide the National Health Service for about 47,000,000 people. In the plebiscite 89.5 per cent of British physicians disapproved the National Health Service Act in its present form. This vote was 40,814 to 4,735. As has already been said, 86 per cent voted against accepting the service, the vote being 24,340 to 4,084. Of these, 84 per cent said that they would conform with the major decision and would not accept service. This vote was 24,066 to 4,495. The ballots were sent to more than 56,000 doctors, and 82 per cent were returned. The British physicians are not striking against the sick; they will care for their patients but will not accept payment from the government.

Now the British Medical Association proposes to present the results of the ballot to its representative body, which will meet at the headquarters of the British Medical Association on March 17. In Great Britain a small group of physicians opposed the combat with the government and one organized group—the Socialist Medical Association—has been giving aid and comfort to the Minister of Health and his satellites by asserting that most general practitioners will eventually be anxious to join the service on account of the generous financial terms that the government has offered.

---

[3] Watson, C. J.: Concerning the Naturally Occurring Porphyrins. V. Porphyrins of the Feces, J. Clin. Investigation **16:** 383, 1937.

[4] Rimington, C.: Compt. rend. d. trav, du lab. Carlsberg, série chim. **22:** 454, 1938.

[5] Kluver, H.: On Naturally Occurring Porphyrins in the Central Nervous System, Science **99:** 482, 1944.

The British Medical Association opposes the National Health Service Act as the first and irrevocable step toward a whole time state medical service. In Great Britain, as in this country, the national medical care plan is offered as a health service instead of what it actually is—a system which would eventually bring every physician into government employment. The *British Medical Journal* has inspired British physicians to stand firm in their opposition to such enslavement. In an editorial published January 17 the *British Medical Journal* says:

> "Doctors are not business men. They do not form a class whose money comes to them by heredity. They work hard—probably harder and certainly for longer hours than any other section of the community. They are subject to great strain and risk of ill health. The love of their work makes them put up with much that no other group of workers would tolerate. Next to their work what they most prize is freedom—freedom to practice what they are taught and to carve out a career by hard endeavor. In Britain this freedom is secured by the ownership of general practices and by voluntary service in hospitals. This freedom is now being undermined. What medical men most fear is this loss of freedom. By standing firm they can retain it."

Current Comment

SELECTIVE SERVICE STATISTICS

Before the senatorial committee hearing on proposed health legislation in Washington, D. C., and again at the recent meeting of the National Conference on Rural Health in Chicago, Dr. Maurice H. Friedman discussed the high incidence of medical defects noted in the selective service statistics. In many cases claims as to the need of extension of medical care based on these statistics have been unjustified. A workman falls into a machine and sustains a crushing injury of the arm; good medical and surgical care in this instance preserves his life, even though amputation becomes necessary. This patient eventually appears in selective service statistics as a medical defective. Patients may have perforated ear drums following incision of the drum for otitis media. In the presulfonamide, prepenicillin period, incision of the drum for drainage was good medical care. Cases of rheumatic heart disease, diabetes and thousands of other cases in which good medical care preserved lives of patients who might otherwise have died are reflected eventually in the statistics. Had all these patients been allowed to die, statistics regarding numbers of medical defectives would be considerably improved. In the war years, 1942 to 1945, both infant mortality and maternal mortality rates improved. During this period approximately one third of all physicians in the United States were in military service or otherwise unavailable to the civilian population. Should this be interpreted to mean that there are too many physicians in the United States? Many similar interpretations can be placed superficially on draft statistics. Dr. Friedman warns that thorough study is still necessary before the true interpretations can be placed on the statistics.

PHENYLPYRUVIC OLIGOPHRENIA

In 1934 Fölling[1] reported the discovery of phenylpyruvic acid in the urine of certain feebleminded patients, apparently the result of incomplete metabolism of phenylalanine, an amino acid commonly found in food proteins. Indeed, further studies[2] showed that the output of this abnormal metabolite varied directly with the level of protein in the diet and that the feeding of either of the optical isomers of phenylalanine resulted in an augmented excretion of phenylpyruvic acid. In the same conditions the concentration of phenylalanine itself is increased in the blood and spinal fluid.[3] The incidence of this metabolic error in a large population of feebleminded persons is about 0.5 per cent,[4] and it appears to be hereditary.[5] Blond hair, blue eyes, patchy eczema and rather heavy musculature with increased tone and with tremor are physical characteristics frequently noted in these patients with phenylpyruvic oligophrenia. Deviation from the normal does not occur in the amino acid content of the tissues in this condition.[6] The benzene ring is notably difficult to oxidize in the body, and it frequently has been used experimentally to label compounds whose metabolic fate is being studied. Disease such as tyrosinosis and alkaptonuria are classic examples of errors of metabolism in which the phenyl group in ordinary amino acids is involved. Also, experimentally, aromatic metabolites of phenylalanine can be demonstrated under certain conditions in rats on a thiamine-deficient diet and in guinea pigs when ascorbic acid is lacking in the ration. However, from the available evidence it appears that the metabolic disturbance in phenylpyruvic oligophrenia is distinct from that hitherto induced in experimental animals. Jervis[7] believes that the metabolic defect in these mental patients resides in a failure to attach a hydroxyl group to the benzene ring in phenylalanine, which would take place under normal conditions and thus carry the metabolism through tyrosine and on to carbon dioxide and water. The close correlation between a rather specific chemical deviation and mental abnormality in certain feebleminded patients raises again the hope of demonstrating similar relationships in other types of mental disease. Once this is done, the way may be open to more productive therapy in these situations.

---

1. Fölling, A.: Ztschr. f. physiol. Chem. **227:** 169, 1934.
2. Penrose, L., and Quastel, J. H.: Biochem. J. **31:** 266, 1937. Jervis, G. A.: J. Biol. Chem. **126:** 305, 1938.
3. Jervis, G. A.; Block, R. J.; Bolling, D., and Kanze, E.: J. Biol. Chem. **134:** 105, 1940.
4. Jervis, G. A.: Arch. Neurol. & Psychiat. **38:** 944, 1937.
5. Penrose, L. S.: Lancet **2:** 192, 1935.
6. Block, R. J.; Jervis, G. A.; Bolling, D., and Webb, M.: J. Biol. Chem. **134:** 567, 1940.
7. Jervis, G. A.: J. Biol. Chem. **169:** 651, 1947.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

Feb. 26, 1948.

President Truman Announces Appointment of Dr. Scheele

As noted in THE JOURNAL last week, President Truman announced that Dr. Leonard A. Scheele, assistant surgeon general of the U. S. Public Health Service and director of the National Cancer Institute, has been appointed surgeon general. He will succeed Surgeon General Thomas Parran under the policy of the U. S. Public Health Service whereby the surgeon generalship is rotated to maintain high morale in the service. Dr. Parran will continue as this country's representative on the World Health Organization, and he will doubtless officiate to some extent as a representative at large of the service on world health matters. Oscar R. Ewing, federal security administrator, commented that "if you don't rotate the jobs you kill the ambition of men in the service." Appointment of Dr. Scheele conforms with the service's policy of avoiding patronage appointments.

Medical Chief Comments on Retirement Systems

During House Armed Services Subcommittee hearings on the armed forces' retirement pension systems, Rear Admiral Clifford A. Swanson, Navy Surgeon General, stated that the fact that a retired officer was approved for life insurance or was able to earn a good living in private industry would not mean that the Navy was wrong in giving him a disability retirement. He said: "After all, an amputee with good life expectancy is likely to be an excellent insurance risk, and a blind man can make good money as a musician. In both cases the men would not be acceptable for active Navy duty."

Medical Legislation

STATE LEGISLATION

Kentucky

Bills Introduced—H. 232 proposes that no hospital shall, on account of race, deny any physician the right to practice in the institution, or deny any student the right to receive hospitalization in the institution or deny any student the right to receive postgraduate or inservice instruction or training in the institution. S. 162 proposes to prohibit the handling, sale and distribution of barbiturates except on the written prescription of a practitioner licensed to prescribe and administer barbiturates, with certain stated requirements relating to pharmacists and wholesale dealers in the drug. S. 167 proposes the enactment of a licensing law for hospitals, health centers and nursing homes. S. 170 proposes to authorize the board of trustees of the University of Kentucky to establish a college of medicine and surgery in connection with the University.

Massachusetts

Bill Introduced.—H. 1748 proposes, on the basis of an initiative petition, to authorize physicians to provide medical contraceptive care to married women for the protection of life or health.

Mississippi

Bills Introduced.—H. 351 proposes the enactment of a workmen's compensation law. H. 386 proposes the appropriation of $510,000 to the state medical education board for the purpose of carrying out the provisions of the law relating to medical scholarships and loans. H. 423 proposes the creation of a four year medical school as a department of the University of Mississippi, which shall be operated as a class A medical school in accordance with the Council on Medical Education of the American Medical Association. S. 187 proposes an act to provide for the treatment and/or assistance and diagnosis of patients having cancer or suspected of having cancer.

Rhode Island

Bill Introduced.—H. 658 proposes an act to extend and strengthen the mental health services in the state and proposes to designate the state department of social welfare as the agency to cooperate with the federal government in this regard.

South Carolina

Bills Introduced.—H. 1104 proposes to authorize the deduction for state income tax purposes of expenses of hospitalization, medical service and medicine paid on behalf of the taxpayer or any dependent. H. 1190 proposes a bill to create and maintain county boards of health, to prescribe their duties, and so forth.

Coming Medical Meetings

Alabama, Medical Association of the State of, Mobile, April 15-17. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

American Association of Anatomists, Madison, Wis., April 21-23. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Industrial Physicians and Surgeons, Boston, March 28-April 4. Dr. Frederick W. Slobe, 28 E. Jackson Blvd., Chicago 4, Secretary.

American Association of Pathologists and Bacteriologists, Philadelphia, Jefferson Medical College, March 12-13. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland 6, Secretary.

American Broncho-Esophagological Association, Atlantic City, Chalfonte-Haddon Hall, April 7-8. Dr. Paul H. Holinger, 700 N. Michigan Ave., Chicago 11, Secretary.

American College of Allergists, New York, Hotel Pennsylvania, March 12-14. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary

American College of Physicians, San Francisco, Civic Auditorium, April 19-23. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Secretary.

American Laryngological Association, Hot Springs, Va., April 14-15. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia 2, Secretary.

American Laryngological, Rhinological and Otological Society, Atlantic City, April 7-9. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Orthopsychiatric Association, New York, Hotel Commodore, April 12-14. Nina Ridenour, Ph.D., 1790 Broadway, Rm. 916, New York 19, Secretary.

American Otological Society, Hot Springs, Va., April 12-13. Dr. Gordon D. Hoople, 713 E. Genesee St., Syracuse 2, N. Y, Secretary.

American Physiological Society, Atlantic City, March 15-19. Dr. Maurice Visscher, University of Minnesota, Minneapolis 14, Secretary.

American Society for Experimental Pathology, Atlantic City, March 15. Dr. Frieda S. Robscheit-Robbins, 260 Criddenden Blvd., Rochester 7, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Atlantic City, March 14-19. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.

American Society of Biological Chemists, Atlantic City, March 14-19. Dr. Otto A. Bessey, Public Health Research Institute, New York 19, Secretary.

Arkansas Medical Society, Little Rock, Robinson Auditorium, April 15-17. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

California Medical Association, San Francisco, April 11-14. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, Palmer House, March 2-5. Dr. Willard O. Thompson, 30 N. Michigan Blvd., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, Hotel Adolphus, March 15-18 Dr. Glenn D. Carlson, 1133 Medical Arts Bldg., Dallas, Secretary.

Federation of American Societies for Experimental Biology, Atlantic City, March 15-19. Dr. William H. Chambers, Medical Division, Army Chemical Center, Maryland, Secretary.

Florida Medical Association, St. Augustine, Ponce de Leon Hotel, April 11-14. Dr. Robert B. McIver, 111 W. Adams St., Jacksonville, Secretary.

Iowa State Medical Society, Des Moines, April 18-21. Dr. John C. Parsons, 406 Sixth Ave., Des Moines 9, Secretary.

Louisiana State Medical Society, Monroe, April 12-14. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans 13, Secretary.

Michigan Postgraduate Clinical Conference, Detroit, Book-Cadillac Hotel, March 10-12. Dr. H. H. Cummings, 2014 Olds Tower, Lansing 8, Chairman.

Missouri State Medical Association, St. Louis, Hotel Jefferson, March 14-17. Mr. T. R. O'Brien, 634 N. Grand Blvd., St. Louis 3, Exec. Secretary.

New England Dermatological Society, Boston, April 14. Dr. G. Marshall Crawford, 1180 Beacon St., Brookline, Mass., Secretary.

Northern Tri-State Medical Association, Findlay, Ohio, April 13. Dr. Don F. Cameron, 247 W. Berry St., Ft. Wayne, Ind., Secretary.

Ohio State Medical Association, Cincinnati, March 30-April 1. Mr. C. S. Nelson, 79 E. State St., Columbus 15, Secretary.

Oklahoma State Medical Association, Oklahoma City, April 18-22. Mr. Dick Graham, 210 Plaza Court, Oklahoma City, Executive Secretary.

Southeastern Surgical Congress, Hollywood, Fla., Hollywood Beach Hotel, April 5-8. Dr. Benjamin T. Beasley, 45 Edgewood Avenue S. E., Atlanta 3, Ga., Secretary.

Southwest Allergy Forum, Oklahoma City, April 5-6. Dr. Fannie Lou Leney, 1200 N. Walker St., Oklahoma City, Secretary.

Tennessee State Medical Association, Nashville, April 13-14. Dr. W. M. Hardy, 706 Church St., Nashville 3, Secretary.

United States-Mexico Border Public Health Association, Laredo, Texas and Nueva Laredo, Mexico, March 20-22. Dr. M. F. Haralson, U. S. Court House, El Paso, Texas, Secretary.

GOVERNMENT SERVICES

ARMY

TOUR OF INSPECTION BY COMMITTEE ON MEDICAL AND HOSPITAL SERVICES

The Committee on Medical and Hospital Services of the Armed Forces, appointed by Secretary of Defense Forrestal, left Washington, D. C., February 16 to visit medical installations in Florida, Texas, Arizona, California, Washington, Colorado, Missouri and Ohio. The committee, with Dr. Paul R. Hawley, formerly chief medical director of the Veterans Administration, as chairman, was instructed to make a thorough, objective and impartial study of the medical services of the Armed Forces, so that the Secretary of Defense may obtain at the earliest possible date "the maximum degree of coordination, efficiency and economy" in their operation.

The official party includes Major Gen. Raymond W. Bliss, surgeon general of the Army; Rear Admiral C. A. Swanson, surgeon general of the Navy; Major Gen. Malcolm C. Grow, the air surgeon, U. S. Air Force, and Rear Admiral Joel T. Boone (MC), U. S. Navy, executive secretary of the committee. The installations visited and to be visited by the committee, and the dates of the visits, are:

February 17—Pensacola, Fla., Navy Flight Surgeon's School, and Houston, Texas, Naval Hospital.

February 18—San Antonio, Texas, Army General Hospital, Air Force Station Hospital and School of Aviation Medicine.

February 19—El Paso, Texas, Army General Hospital, and Tucson, Ariz., Air Station Hospital.

February 20 and 21—San Diego, Calif., Naval Air Station Dispensary, Naval Hospital, and medical facilities of Naval Training Center, Marine Corps Base and Naval Receiving Station.

February 22—Riverside, Calif., (March Field) Air Station Hospital, and Corona, Calif., Naval Hospital.

February 23—Pasadena, Calif., Army General Hospital, and Long Beach, Calif., Naval Hospital.

February 24—Moffett Field, California, Naval Dispensary.

February 24, 25 and 26—San Francisco, Letterman Army General Hospital, Oakland Naval Hospital, Mare Island Naval Hospital, Army and Navy Medical Supply Depots (Oakland and San Francisco), Hamilton Field Air Force Station Hospital.

February 27—McCord Field, Washington, Fort Lewis Army General Hospital, and Seattle, Sands Point Naval Air Station Dispensary.

February 28—Bremerton, Wash., Naval Hospital

March 1—Denver, Lowry Field Air Force Station Hospital, Fitzsimons Army General Hospital

March 2—St. Louis, Army Medical Supply Depot.

March 2 and 3—Dayton, Ohio, Wright Field Air Force Station Hospital, Air Force Aeromedical Laboratory.

Specific problems which Secretary Forrestal asked the committee to study include: (1) improvement in use of existing hospital facilities; (2) coordination of current plans for construction of any new hospital facilities; (3) methods for improving organization, management and administration in operation of hospital and medical programs; (4) coordination or consolidation of medical research and maximum joint use of research facilities; (5) coordination or consolidation of medical training programs; (6) allocation to one service of responsibility for providing all hospitalization and medical care for all services in certain fields of medicine, and (7) development, to the highest practicable degree, of common standards, practices and procedures with respect to physical and mental requirements for entrance into the service and disability discharges, for preventive medicine and for the organization, administration and operation of hospitals.

The committee is to study these problems and to report its observations, conclusions and recommendations to Secretary Forrestal for his consideration and possible action. The committee has no power to order changes. Among those who accompanied the committee on the tour of medical installations are:

Navy.—Rear Admiral Bertram Groesbeck (MC), chief, Aviation Medicine Division, Bureau of Medicine and Surgery. Rear Admiral C. B. Rault (DC), chief, Dental Division, Bureau of Medicine and Surgery. Capt. J. B. Logue (MC), chief, Personnel Division, Bureau of Medicine and Surgery. Capt. Nellie J. Dewitt (NC), director, Navy Nurse Corps. Lieut. Comdr. A. H. Nelson (MSC), administrative assistant to the Surgeon General of the Navy. Lieut. Harry W. Combs (MSC), Enlisted Personnel Branch, Bureau of Medicine and Surgery. Miss Clare R. Murphy, secretary to the Surgeon General.

Army.—Major Gen. T. L. Smith, D. C., chief, Dental Division, Office of the Surgeon General. Col. M. G. Phillips, chief, Army Nurse Corps. Col. P. I. Robinson, M. C., chief, Personnel Division, Office of the Surgeon General. Col. R. E. Duke, M. C., chief, Education and Training Division, Office of the Surgeon General. Major J. F. Doyle, M. S. C., Assistant Executive Officer, Office of the Surgeon General.

Air.—Col. W. H. Powell Jr., M. C., chief, Professional Division, Office of the Air Surgeon. Col. Daniel Ogle, M. C., surgeon, Air University, Montgomery, Ala.

TEST REACTIONS OF SOLDIERS TO HEAT AND COLD

Army Medical Department researchers have undertaken experiments, with the cooperation of the U. S. Air Force, to determine what might happen to the physical and psychologic well-being of soldiers suddenly transported by air from war climates to extreme arctic cold. Thirty-two Air Force soldiers, selected for high physical and mental capacity from a group of volunteers, have been flown from the semitropic climate of McDill Field, Florida, to a subarctic cold area to the far North.

All the men had been stationed at the Florida post for months and were completely adjusted to that climate. Within less than fifteen hours they were set down amid snow and ice in zero temperatures to set up a bivouac.

For several weeks before leaving Florida they were subjected to practically every physical test known to medical science. These tests ranged from basal metabolic and blood pressure measurements to complete blood chemistry. Sulfur content of red cells, vitamin C content of blood cells and plasma, complete urinalyses, concentration of sex and adrenal hormones and their precursors and analysis of body fats were among the determinations.

When the men arrived at their arctic base the tests were again performed. The objective is to discover the biochemical and physiologic changes which accompany day to day acclimatization to cold and the variation of these changes with individuals. The entire field is one in which there are relatively few scientific data. Much has been discovered in tests under simulated conditions, but much remains to be explored as to psychologic reactions and their effects on physical well-being, reactions known medically as psychosomatic.

At their bivouac the men have been divided into three groups. One group will be fed a ration of about 500 calories a day, only half the average human requirement. Another will receive the equivalent of 1,800 calories a day, about what is required in the Florida climate. The third will receive 5,700 calories, consisting mostly of fats and comparable to the diet of Eskimos and others who dwell in the arctic. Presumably those receiving the high caloric ration will adjust best, but the adjustments of those in the other groups are expected to shed light on the importance of diet in acclimatization.

The technical director of this operation is Dr. Robert E. Johnson of the Army Medical Nutrition Laboratory at Chicago. The party is under the command of Lieut. G. E. Gustafson of the same laboratory. Members of the staff and consultants of the Army Surgeon General are participating.

APPOINTMENTS TO MEDICAL SERVICE CORPS

Monroe E. Freeman, Ph.D., research professor of biochemistry, Massachusetts State College, has resigned and joined the medical service corps in the Army as a major.

Elmer F. Chaffee, M.S., bacteriologist, has resigned from the State Department of Public Health of Idaho and joined the medical service corps as a major. Both of these officers served in the Army overseas during the war.

PUBLIC HEALTH SERVICE

REPORT ON RESULTS OF HILL-BURTON ACT

The U. S. Public Health Service reports that under the Hospital Survey and Construction Act (Hill-Burton Act) as of February 6, one hundred and twenty-four applications for hospital construction have been approved from sixteen states. Of these, one hundred and four are general hospitals, only eleven of which are located in communities of more than ten thousand population. Only forty-one of the hundred and four general hospitals have more than fifty beds. The total cost of approved projects is estimated at about $60,000,000, of which about $18,000,000 will be from federal sources and the remainder from state or local funds.

Forty-nine of the fifty-two states and territories have submitted information indicating their desire to participate in the program. Budgets that provide federal funds to assist in the development of hospital survey and planning have been approved for forty-seven states, while the other five states have not yet requested funds. Forty states have submitted hospital construction plans, thirty-three of which have been approved by the Surgeon General. Legislation authorizing the states to conduct their survey and construction program has been passed or found already sufficient in fifty of the states and territories. Legislation granting authority to license hospitals has been passed or found sufficient in twenty-four states. Eleven states have prior legislation which is sufficient for this program. In six states the legislation appears to be adequate, but the Attorney General will have to issue an opinion supporting that view. In the other eleven states the model legislation was not passed, and it will be necessary for the state to determine that sufficient authority exists or to pass authorizing legislation before minimum standards for maintenance and operation can be issued and enforced. Seven states and one territory—Alabama, Alaska, California, Illinois, Mississippi, New York, North Carolina and Utah—have enacted legislation authorizing allotment of their funds to communities for use in matching federal money for construction.

ECREASE IN TYPHUS IN SOUTHERN STATES

Reported cases of murine typhus decreased 56.4 per cent in two years in nine Southern states, as a result of DDT dusting by state and local health departments, according to preliminary data published in a recent issue of *Public Health Reports.* The Communicable Disease Center of the Public Health Service at Atlanta, Ga., inaugurated the expanded typhus control program in July 1945 by reducing the number of rat ectoparasites. A 10 per cent DDT dust was applied to rat runs, burrows and harborages. Projects were established in the one hundred and twenty-two counties that reported 72.3 per cent of all typhus cases in the nine principal typhus states, or 70.5 per cent of all typhus reported in the United States. In the ten counties with the highest incidence of typhus reported cases dropped from 1,074 in 1944 to 395 in 1946. In all dusted areas reduction of Oriental rat fleas has averaged 84 per cent on the basis of actual flea counts from more than seventeen thousand live rats.

STUDIES ON SCHISTOSOMIASIS

Previously withheld from publication for security reasons, results of research on the blood fluke infection, schistosomiasis, have been released by the U. S. Public Health Service in "Studies on Schistosomiasis," National Institute of Health Bulletin 189. Many of the institute's investigations into this snail-borne disease were conducted at the request of the Surgeon General of the Army. While the disease is not endemic in this country, some military personnel returning from overseas were found to be infected, mostly as a result of exposure in certain islands of the Philippines. Major aspects of the research included: determination of whether domestic snails could serve as intermediate hosts of the three species of human schistosomes and whether treatment of sewage and water could destroy ova and miracidia, and what processes were made effective; development of ointments for chemical impregnation of fabrics against penetration of the larval cercariae, and diagnosis of the disease by serologic and intradermal tests. The two hundred and twelve page bulletin, "Studies on Schistosomiasis," may be purchased through the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 55 cents a copy.

APPOINTMENTS TO MENTAL HYGIENE DIVISION

The Federal Security Administrator has announced the following appointments to the headquarters staff of the Mental Hygiene Division, U. S. Public Health Service:

Senior Surgeon Seymour D. Vestermark as chief, Training and Standards Section. Dr. Vestermark was formerly executive officer and director of training of the U. S. Public Health Service Hospital, Fort Worth, Texas.

Dr. Jerry W. Carter Jr. as psychologist, Operational Projects Section. Dr. Carter was formerly director of the Wichita Guidance Center, Wichita, Kan.

Dr. Henry D. Sheldon as chief, Institutional Statistics Unit, Statistics and Special Studies Section. Dr. Sheldon was formerly chief of the Institutional Statistics Unit, Bureau of the Census.

The following commissioned officers of the U. S. Public Health Service have been assigned as consultants in mental health to the Public Health Service District Offices:

Surgeon James F. Maddux to District 7, Kansas City, Mo. Surgeon William C. Jenkins Jr. to District 8, Denver. Dr. Maddux and Dr. Jenkins recently took postgraduate training in psychiatry at the Colorado Psychopathic Hospital, Denver.

ANNUAL CENSUS OF MENTAL PATIENTS

The annual census of patients in mental institutions, which has been conducted by the U. S. Bureau of the Census since 1926, has been transferred to the Mental Hygiene Division of the U. S. Public Health Service, as a result of its increased responsibilities under the National Mental Health Act. An Institutional Statistics Unit has been established in the Statistics and Special Studies Section, of which Dr. Charles C. Limburg is acting chief. Dr. Henry D. Sheldon, who has been chief of the Institutional Statistics Unit of the Bureau of the Census, will continue to be chief of the unit on its transfer. In addition to continuing the census of patients in mental hospitals and institutions for epileptics and the mentally defective, plans are now being made to enlarge the census of psychopathic hospitals and psychiatric services in general hospitals and to include a census of mental hygiene clinics operated under federal, state and local government and fraternal and private auspices. Publication of the consolidated annual report, "Patients in Mental Institutions," will be continued by the Public Health Service.

AWARD TO DR. HINGSON

The Junior Chamber of Commerce of the United States has named Dr. R. A. Hingson, surgeon, U. S. Public Health Service, as one of the ten outstanding young men of the nation for 1947 and in ceremonies at Chattanooga, Tenn., January 21, presented to him a gold key as a token of the honor. Dr. Hingson is known especially for his part in developing continuous caudal analgesia for the control of pain in childbirth and in the treatment of eclampsia and peripheral vascular disease. The method has been used in more than half a million deliveries. During the last eight years training classes conducted by Dr. Hingson in the use of this method have been attended by more than 1,500 physicians. At present he is detailed by the Public Health Service to the University of Tennessee College of Medicine, Memphis, where he is codirector of the postgraduate course in anesthesiology and obstetrics. He is a graduate of Emory University School of Medicine, Atlanta, Ga. He has contributed many articles on caudal analgesia to scientific journals and is co-author of a book "Control of Pain in Childbirth." He served during the war in rescue work on a Coast Guard Cutter and in patrol and convoy duty for the Navy.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Indiana

Burks, Jess E.	Gary
Campbell, Sam W.	Indianapolis
Englehart, Otto T. Jr.	Indianapolis
Humphrey, Paul E.	Indianapolis
Mauzy, Merritt C.	Indianapolis
Sacks, Harry J.	Indianapolis
Singer, Ralph C.	Indianapolis
Smith, Richard B.	Fort Wayne
Walker, Adolph P.	Mishawaka
Wolfe, Nelson A.	New Albany

Iowa

Bailey, Robert O.	Parkersburg
Bloemendaal, Edwin J. G.	Orange City
Heise, Harris B.	Manson
Hicks, Edgar O.	Iowa City
Ingle, Newell G.	Emmetsburg
Saunders, William H.	Council Bluffs
Troxell, Millard A.	Hawarden
Yu, Poe-Eng	Fort Des Moines

Kansas

Schulz, Millard E.	Lawrence
Waraich, Gurbakhash S.	Topeka
Zimmerman, Leon W.	Liberal

Kentucky

Gard, Paul D. Jr.	Louisville
Kaplan, Sherman R.	Providence
Wilson, Roy G.	Smithland

Louisiana

Blamphin, Arthur Z.	New Orleans
Forestiere, Angelo J. Jr.	New Orleans
Izen, Joe A.	Monroe
Lawrence, Thomas J.	Mansfield
Levin, Irving A.	New Orleans
Pou, Frederick A.	New Orleans

Mississippi

Dent, John H.	Vicksburg
Fowler, Richard E. L.	Marion
Hamilton, Longstreet C.	Jackson
Lamb, Roland D.	Columbus
Rogers, George W.	Gulfport

North Carolina

Baker, Horace M. Jr.	Lumberton
Highsmith, Charles J.	Dunn
Jordan, George L. Jr.	Kinston
Sprinkle, Lawrence T.	Weaverville
Verner, Hugh D.	Forest City
Wilkerson, Joseph L.	Greenville
Williams, Thomas R. Jr.	Hickory

North Dakota

Scea, Wallace A.	Dickey

Ohio

Biedel, Clark W.	Marietta
Frell, Thomas C.	Warren
Gradolph, Paul L.	Hamilton
Greenwald, Arthur F.	Cincinnati
Hendershot, Jack G. G.	Canton
Hudack, Edward D.	Cleveland
Kasserman, Walter H.	Hannibal
Kowallek, Paul J. Jr.	East Cleveland
Levine, Earl J.	Columbus
Pack, George T.	Columbus
Reed, Joseph O. Jr.	Findlay
Reisenfeld, Allen J.	Cleveland
Rice, Franklyn A.	Cleveland
Rowen, Manuel J.	Cleveland
Scheer, David K.	Toledo
Schlecht, Fred G.	Girard

Ohio—Continued

Slatmyer, Karel R. Jr.	Elyria
Smith, George A.	Springfield
Spear, Richard C.	Newcomerstown
Swainey, Byron E.	Cincinnati
Townley, Charles O.	Columbus
Urban, Donald A.	Zanesville
Varney, Dean C.	Columbus
Weihl, Carl	Cincinnati

Oklahoma

Cawley, Francis P.	Fairview
Demas, Ross P.	Ponca City
First, Safety R.	Tulsa
Fullenwider, Charles G.	Muskogee
Simon, Floyd	Clinton
Snoody, William T.	Norman
Tagge, James F.	Enid

Pennsylvania

Aye, John T.	Ambridge
Breckenridge, Robert L.	Washington
Chomko, Martin	Scranton
Cleland, William D. Jr.	New Castle
Dove, Frederick D. Jr.	Philadelphia
Duncan, James R. Jr.	Jannette
Eckroth, Richard N.	Elizabethtown
Edmonston, George F. Jr.	Pittsburgh
Eisenberg, Morton S.	Harrisburg
Evashwick, George	Turtle Creek
Eyler, Joseph A.	Bedford
Gilday, Frank J. Jr.	Scranton
Gwinn, Benjamin C.	Mansfield
Haislip, Donald B.	Dormont
Healey, Joseph T.	Wilkes Barre
Hickes, John M.	Glassport
Janis, Leonard J.	Pittsburgh
Jones, George H. Jr.	Shamokin
Karpinski, Felix E. Jr.	Philadelphia
Lesse, Stanley	Philadelphia
Klopp, John B.	Chester
McCort, James J.	Philadelphia
McNeill, John R.	Erie
Menges, Charles G. H.	York
Miller, James E.	Barnesboro
Minnich, Philip H.	York
Monk, John S.	York
Myers, Jacob M. Jr.	Mercersberg
Ochenrider, Paul D.	Aristes
Osheka, William	Pittsburgh
Putney, Floyd J.	Philadelphia
Rosenberg, Harvey W.	Pittsburgh
Rothfuss, Charles A.	Williamsport
Sgarlat, Joseph R.	Kingston
Shaffer, Jerome D.	Reading
Sinnott, John Jr.	Philadelphia
Snyder, Robert J.	Philadelphia
Strang, John E.	Philadelphia
Wexlar, Irving B.	Philadelphia
Woolmington, Merrill H.	Llanerch

Rhode Island

Blount, Samuel G. Jr.	Providence
Cardillo, Edward	Longmeadow
Carr, Edward A. Jr.	Cranston

South Carolina

Gunter, Arthur R.	Rock Hill
Hoy, William E. Jr.	Columbia
Martin, Thomas L.	Greenville
Townsend, James M.	Charleston
Turner, Gary E.	Augusta

South Dakota

Donahoe, John W.	Sioux Falls
Greenough, Edward E.	Salem
Kirby, William M. M.	Springfield
Lampert, Arthur A.	Rapid City

Tennessee

Alperin, Ralph	Memphis
Cosby, Harry Jr.	Memphis
Davis, Martin	Knoxville
Green, George W. Jr.	Memphis
Harrison, Walton W.	Shelbyville
Kraeft, Nelson H.	Nashville
Mohler, Ebert M. Jr.	Memphis
Moore, Harry T. Jr.	Nashville
Piston, Robert E.	Johnson City

Texas

Cookerly, Van	Dallas
Henderson, Hodgie C. Jr.	Dallas
Jones, George W.	Taft
Tom, Henry K.	Port Arthur

Virginia

Burdette, Lewis M.	Norfolk
Chitwood, Walter R.	Wytheville
Ediss, Gershon G.	Norfolk
Hardie, Arthur L. Jr.	Danieltown
Pillow, Randolph P.	Roanoke
Schumacher, Jack	Arlington
Schweizer, Donald C.	Richmond
Stoeckel, Jay E.	Richmond
Troxell, John R.	Charlottesville
West, George B.	Norfolk

Washington

Bader, Bernard A.	Tacoma
Kerron, Seth M.	Vancouver
LaLonde, Edward J.	Vancouver
Leer, Ralph H.	Seattle
McDowell, LeRoy E.	Sumner
Middleton, Thomas T.	Tacoma
Pearce, Earl B.	Seattle
Sterner, John A.	Seattle
Streeper, Richard B.	Buckley

West Virginia

Gray, David B.	Rainelle
Kimball, Walter S.	Sisterville
Lowy, Otto J.	Charleston
Snyder, Thomas M.	Roanoke
Williamson, Robert G.	Charleston

Wisconsin

Anderson, Alton D.	Mondovi
Bolger, James V.	Shorewood
Bourget, Gerald E.	Cadott
Cartwright, George E.	Lancaster
Hackbarth, Daniel E.	Milwaukee
Monroe, Matthew W.	Milwaukee
Mudge, William A.	Milwaukee
Oppert, Harold E.	Merrill
Pachefsky, Hyman	Milwaukee
Rasmussen, Nathaniel G.	Madison
Schmidt, Robert T.	Milwaukee
Shanberge, Jacob N.	Milwaukee
Spiro, Harry M.	Mendota
Wagner, Marvin	Milwaukee
Wallner, Alfred	Madison
Wochos, Robert G.	Kewaunee

Alaska

Martin, Asa L.	Anchorage

Hawaii

Richardson, Barrister A.	Kealakekua

Canal Zone

Etherton, Fred S.	Aancon

Puerto Rico

Jimenez, Rafael A.	Santurce
Medina, Antonio S. Jr.	San Juan

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: *such as relate to society activities, new hospitals, education and public health.* Programs should be received at least two weeks before the date of meeting.)

COLORADO

Dr. Waring Resigns as Administrator.—Dr. James J. Waring has resigned as the administrative head of the Department of Medicine of the University of Colorado School of Medicine, Denver. He will continue with the school as a full time teaching professor. The new departmental head has not yet been appointed.

Annual Midwinter Postgraduate Clinics.—The thirteenth annual Midwinter Postgraduate Clinics, sponsored by the Colorado State Medical Society, will be held March 3-5 in Denver. Guest speakers will be: Paul D. White, Boston, cardiology; Gershom J. Thompson, Rochester, Minnesota, urology; Everett D. Plass, Iowa City, obstetrics and gynecology; William B. Parsons, New York, surgery; William C. Menninger, Topeka, Kan., psychiatry; William R. Lovelace II, Albuquerque, N. Mex., surgery; John R. Lindsay, Chicago, otolaryngology; Robert L. Jackson, Iowa City, pediatrics, and Franklin M. Hanger, New York, internal medicine.

GEORGIA

Dr. Nonidez Dies.—José F. Nonidez, Sc.D., professor of microscopic anatomy of the University of Georgia School of Medicine, Augusta, died recently, aged 55, of coronary thrombosis. Dr. Nonidez was formerly research associate in the Department of Experimental Evolution at Cold Spring Harbor, N. Y.

Annual Meeting of Ophthalmologists.—The Georgia Society of Ophthalmology and Otolaryngology will hold its annual meeting at the Fulton County Academy of Medicine, Atlanta, March 5-6. The lecturers include Drs. Bennett Y. Alvis, St. Louis; Arthur J. Bedell, Albany; Ramon Castroviejo, New York; J. Brown Farrior, New Orleans; French K. Hansel, St. Louis; J. Elliott Scarborough Jr., Atlanta. There will be no registration fee for out of state guests attending the meeting.

ILLINOIS

Measles Epidemic.—For the week ending February 7 measles cases in the state totaled 1,900 or 108 more than in the preceding week. The total number of cases to February 13 was 7,738 compared with 112 in the corresponding period last year, according to the state health department.

Mental Hygiene Meeting.—The Illinois Society for Mental Hygiene will hold its annual meeting March 18 at the La Salle Hotel, Chicago. The speaker for the dinner at noon, when the society will launch a campaign for children's services, will be Dr. Henry H. Work, New York, and his subject, "Mental Hygiene Needs of Children—1948."

Physical Therapists Meeting.—The Illinois Chapter of the American Physical Therapy Association will hold its regular monthly meeting on March 3 at 7.30 p.m. at Martin's Lounge, 120 South La Salle Street, Chicago. Dr. Fred P. Robbins, Michael Reese Hospital, will conclude a series of three lectures on "Psychosomatic Medicine." Dinner will be served at 6.30 p.m.

Townships Quarantined for Rabies.—A campaign to eliminate a rabies menace, which has already resulted in quarantine in Bloom, Worth, Thornton and Rich townships in Cook County, is being planned by the county health department. The number of cases in the quarantine sections is the highest in seven years, according to Dr. Edward A. Piszczek, county health director. Both Bremen townships and parts of Calumet township are on the borderline of emergency classification. One objective will be to clean up the stray dog situation.

Meeting on Diseases of the Heart.—A joint meeting of the Illinois Heart Association and the Sangamon County Medical Society will be held March 4 at the Memorial Hospital, Springfield, beginning at 2 p.m. After clinicopathologic demonstrations, Dr. Thomas H. Burford, St. Louis, will speak on "Surgery of Congenital Cardiovascular Defects" and Dr. Don C. Sutton, Chicago, "Prognosis in Heart Disease." A panel discussion will begin at 4.30 p.m. At the evening meeting at the Elks Club, Dr. Harry A. Durkin, Peoria, will speak on "American Heart Associations" and Dr. Arlie R. Barnes, Rochester, Minn., on "The Treatment of Congestive Heart Failure."

Chicago

Projector for Educational Film.—A movie projector, gift of the Illinois Women's Golf Association, has been installed in the Museum of Science and Industry for showing films on cancer. The projector automatically shows an educational film dealing with the cell origin, danger signals and necessity for early treatment of cancer.

The Twenty-Fourth Hektoen Lecture.—The twenty-fourth Ludvig Hektoen Lecture of the Frank Billings Foundation will be delivered at the Palmer House on Friday evening, March 26, at 8 o'clock by Dr. Percival Bailey, professor of neurology and neurologic surgery, University of Illinois College of Medicine, on "Organization of the Cerebral Cortex."

Special Society Meeting.—Members of the Chicago Laryngological and Otological Society will be guests of the staff of Illinois Eye and Ear Infirmary at a dinner at 6 p.m., March 1. Richard Silverman, administrative director, Central Institute for the Deaf, St. Louis, will speak on "What is Audiology?" A panel discussion on speech and hearing rehabilitation will also be held.

Dr. Colowick Appointed Associate Professor.—Sidney P. Colowick, Ph.D., an associate in the division of nutrition and physiology at the Public Health Research Institute, New York, has been appointed associate professor of biologic chemistry at the University of Illinois College of Medicine, effective April 1. Dr. Colowick is a graduate of Washington University at St. Louis. During the war he conducted civilian research on chemical warfare agents under contract with the Office of Scientific Research and Development. Dr. Colowick received the Eli Lilly award in biologic chemistry in 1947.

Dr. Ballenger Appointed Director of Department.—Dr. Howard C. Ballenger, who has been a member of the faculty since 1930, has been appointed professor of otolaryngology and chairman of the department in Northwestern University Medical School, succeeding Dr. John Gordon Wilson, retired. Dr. Ballenger received his doctor's degree in medicine from the University of Indiana, 1911. Formerly a consultant to the United States Public Health Service, he is past president of the Chicago Laryngological and Otological Society.

MAINE

Course in Basic Ophthalmology.—The Ophthalmological Study Council, Boston, will offer a course on the basic subjects of ophthalmology at Westbrook Junior College, Portland, June 19 to September 11. The course has proved its value in enabling students to secure residencies and in preparation for examinations of the American Board of Ophthalmology. The course comprises laboratory work in pathology, optics, refraction and slit lamp. Last summer the student enrolment was one hundred and twenty; it will be cut this year to one hundred.

MISSOURI

Meeting of Anesthesiologists.—The regional meeting of the American Society of Anesthesiology and the Kansas City Society of Anesthesiology will be held at the Hotel President, Kansas City, April 4-6. Clinics will be held Monday morning at Research and St. Joseph hospitals in Kansas City, Mo., and at Providence Hospital and the University of Kansas Medical Center, Kansas City, Kan. There will be a symposium on intravenous procaine Tuesday morning, another on spinal, regional and therapeutic nerve block and a third on curare and curare-like compounds in the afternoon.

NEW JERSEY

Dr. English Retires.—Dr. Samuel B. English, superintendent and medical director of the state sanatorium at Glen Gardner since it was established forty years ago, retired Nov. 1, 1947. He is said to be the second oldest superintendent of a tuberculosis hospital in point of service in the United States. The Samuel B. English Memorial Library was dedicated at the sanatorium two years ago. Dr. Joseph A. Smith, assistant medical director, succeeds Dr. English.

Study of Hormones.—A $3,600 grant from the Research Corporation, a nonprofit organization, for research on hormones has been received by Rutgers University, New Brunswick, to support the work of Roderick A. Barnes, Ph.D., assistant professor of chemistry. The Rutgers project involves a study of general methods for the synthesis of steroid compounds, a general classification of naturally-occurring compounds such as the male and female sex hormones, the hormones of the adrenal cortex and bile acids. Dr. Barnes joined the faculty at Rutgers last fall after teaching for two years at Columbia University, New York. He completed his graduate work at the University of Minnesota, Minneapolis, in 1943.

NEW YORK

Niagara Falls Clinical Day.—The Niagara Falls Academy of Medicine will hold its annual Clinical Day March 6 at the Hotel Niagara. Dr. George Crile, Cleveland, will speak on "The Present Status of Propylthiouracil and of Surgery in the Treatment of Hyperthyroidism"; Dr. Foster Kennedy, New York, "The Allergic Influence in Migraine," and Dr. William Bates, Philadelphia, "Simulation of Thoracic and Abdominal Visceral Pathology by Segmental Neuralgia." At the banquet at 7 p m. Dr. Maurice Chideckel, Baltimore, will speak on "The General Practitioner."

Six Regional Health Officers Appointed.—Regional Health Officers to head the six newly established state health regions have been appointed by the state health department. They are Drs. Archibald S. Dean, Buffalo; Joseph P. Garens, Rochester; Ray D. Champlin, Oneonta; Ralph M. Vincent, Binghamton; Robert L. Vought, Rochester, and Philip J. Rafle, Forest Hills. The appointments are effective March 16, and regional offices will be opened as soon thereafter as possible. The appointments are based on recent civil service promotion examinations. The salary range is $7,000 to $8,500. Offices of the five upstate health regions will be located at Buffalo, Rochester, Syracuse, Albany and New York City. The sixth region, which will serve New York City only, will also have offices there.

Postgraduate Instruction in Richmond County.—The Medical Society of the State of New York in cooperation with the New York State Department of Health has arranged postgraduate instruction for the Richmond County Medical Society to be given Friday afternoons at 4.30 in the auditorium of the U. S. Marine Hospital, Stapleton, Staten Island.

March 5: Dr. Harry Gold, New York, The Management of the Failing Heart.

March 12: Dr. Albert F. R. Andresen, New York, Gastrointestinal Hemorrhage.

March 19: Dr. David Goldblatt, New York, Treatment of Burns and Hand Infections.

March 26: Dr. George T. Pack, New York, Cancer of the Stomach.

On March 18 the Geneva Academy of Medicine will hear Dr. Joseph E. J. King, New York, speak on "Head Injuries and Brain Abscess" at the Seneca Hotel, Geneva, 8:30 p. m. Dr. Ferdinand J. Schoeneck, Syracuse, will speak on "Gynecology in General Practice" before the Tompkins County Medical Society Monday, March 15, at 8:30 p. m., at the Tompkins County Memorial Hospital, Ithaca.

New York City

Dr. Steele Appointed Professor.—Dr. J. Murray Steele, associate professor of medicine at New York University College of Medicine since 1939, has been appointed a full professor of medicine and remains director of the Third Research Service, Goldwater Memorial Hospital. For a year and a half Dr. Steele has been director of the New York University Medical Division of Lenox Hill Hospital, and he has recently undertaken research at Goldwater Memorial Hospital in connection with disease associated with old age. He is a graduate of Johns Hopkins Medical School, Baltimore, has been an instructor at the University of Chicago School of Medicine and from 1929 to 1939 was an assistant, then an associate in medicine, at the hospital of the Rockefeller Institute for Medical Research.

Graduate Course in Industrial Medicine.—The Long Island College of Medicine will present its fifth graduate course in industrial medicine April 5-16, under the auspices of the department of preventive medicine and community health. The objective of the course is to provide physicians engaged in full time or part time industrial practice an opportunity to become acquainted with recent developments in industrial medicine. The course will be of special interest also to industrial nurses, hygienists and engineers, personnel workers, representatives of management and labor, and other groups concerned with the health of employees. Tuition for the course will be $75. Inquiries should be addressed to Dr. Thomas D. Dublin, Department of Preventive Medicine and Community Health, 248 Baltic Street, Brooklyn 2.

Lectures for Family Doctors.—A community project to aid family doctors in keeping abreast of medical developments will be inaugurated March 1 at the New York University College of Medicine. Heart disease, psychiatry, anesthesia, dermatology, rehabilitation and physical medicine will be treated in twenty-four clinical sessions; these will be open, free of charge, to members of the medical profession, with faculty members of the college of medicine in charge. Plans call for the clinics to be conducted throughout March, April and May. Registration must be made in advance. Although alumni of the college of medicine are being given preference, effort is being made to accommodate other physicians, and they may obtain information by writing the alumni office at the college, 477 First Avenue, New York 16. All clinics will occur from 4 to 6 o'clock in the afternoon or from 8 to 10 o'clock at night. Half of the two hour sessions will be used for presentation of subject matter, using patients in clinical procedure, and the second hour for open forum discussion. Each special area of medicine will be comprehensively presented over a period of four or six weeks.

NORTH CAROLINA

Memorial Fellowship.—The Charles Hartwell Cocke Memorial Fellowship has been established with the National Tuberculosis Association by a gift of $5,000 from Mrs Charles Hartwell Cocke of Asheville, N. C., in memory of her late husband. Dr. Cocke was a former member of the association.

PENNSYLVANIA

Secretaries and Editors Conference.—The thirty-sixth annual Secretaries and Editors Conference will be held in Harrisburg, Thursday afternoon and evening, March 18, and Friday morning March 19. Officers of the state society, chairmen of the committees on public health legislation, public relations and medical economics are invited to attend, along with county society secretaries and editors of county society bulletins. Representatives of other societies, including the American Medical Association, will be guests. The program will be made up of discussions and round tables. County societies are urged to send their representatives.

Philadelphia

Award for Allergy Paper.—The Philadelphia Allergy Society has established the annual Lillian Snyder Award of $50 for its members, to be presented for the most outstanding paper read at the annual meeting of the society. The award is made possible by a gift from Mr. Louis Snyder in appreciation of the services rendered by a Philadelphia allergist.

Graduate Course in Chest Diseases.—The American College of Chest Physicians, the Pennsylvania Chapter and the Laennec Society of Philadelphia will sponsor the first annual Postgraduate Course in Diseases of the Chest at the Warwick Hotel, Philadelphia, March 15-20. The course will be limited to fifty physicians, applications being accepted in the order received at the American College of Chest Physicians, 500 North Dearborn Street, Chicago 10. The fee of $50 should be enclosed with the application.

Atomic Energy Steering Committee.—The Hospital Council of Philadelphia and the Red Cross, together with members of the medical profession, have formed the Atomic Energy Medical Steering Committee to educate physicians, nurses, hospital personnel and the public in the medical aspects of atomic energy and how to care for and prevent injuries from radioactive substances. Methods include monthly lectures, the first of which drew 250 persons to hear Col. James P. Cooney, M.D., in a talk sponsored jointly with the 248th Medical Unit, M.R.C. Dr. Theodore R. Fetter, president of the Philadelphia County Medical Society, is chairman of the committee.

Pittsburgh

Dr. Rawson to Give Memorial Lecture.—The Doctors Charles and Karl Emmerling Memorial Lecture will be given Tuesday, March 9, 1948, in the rooms of the Academy of Medicine, 322 North Craig Street, by Dr. Rulon W. Rawson, Boston, on "The Effect of Therapeutic Agents on the Pathologic Physiology of Graves' Disease."

Premedical Chapter Installed.—Chi Rho Nu, premedical fraternity of the University of Pittsburgh, became the fortieth chapter of Alpha Epsilon Delta, national honorary premedical fraternity, on its installation as the Pennsylvania Gamma Chapter on January 17. The initiation of one hundred and fifteen active and ten honorary members was conducted by national officers of the fraternity.

TEXAS

Phi Beta Pi Lecture.—Dr. Charles H. Best, University of Toronto, Canada, will deliver the annual Phi Beta Pi lecture at Baylor University College of Medicine, Houston, on the evening of March 22, and will spend the remainder of that week as a visiting professor in the department of physiology.

Society Election.—The Texas Society of Pathologists, at its annual meeting in Galveston, January 25, elected Dr. William W. Coulter, Houston, president; Dr. John F. Pilcher, Corpus Christi, president-elect; Dr. Charles T. Ashworth, Dallas, secretary. Dr. Theodore J. Curphey, Garden City, N. Y., was guest of the society.

WEST VIRGINIA

Health Officers to Teach at State Schools.—Two county health officers recently confirmed by the public health council will teach classes in public health at state schools in addition to performing their official duties. Dr. Milton I. Roemer, Washington, D. C., who became health officer for Monongalia County February 1, will teach public health at West Virginia University, Morgantown Dr. Alford G. Evans, Washington, D. C., who assumed his duties as health officer for Marion County February 1, will teach at Fairmont State Teachers College. Both officers have a master's degree in public health.

Survey of Practicing Physicians.—The state health department, as the result of an order entered at the last meeting of the public health council, is undertaking a survey of physicians practicing in West Virginia. The state has no law requiring the annual or biennial registration of physicians. The state health commissioner has mailed a questionnaire to every physician in the state asking for statistical information. This questionnaire should be filled out and returned without delay. Additional copies may be obtained from the state health department, local medical societies and the West Virginia State Medical Association.

Premature Nursery Established.—The premature nursery, established at the Herbert J. Thomas Memorial Hospital in South Charleston, sponsored by the state department of health, was opened February 16. Incubators furnished by the division of maternal and child health have been placed in the pediatric ward of the hospital. The nursery is a demonstration center; if it proves successful, other premature nurseries will be established throughout the state in an effort to reduce the mortality of premature infants in West Virginia. The new nursery will be used as a training center in this type of work. Preference will be given graduate nurses until space and personnel permit the training of a larger group. The nursery is in charge of Miss Mary Alice Sinclair, who has received special training in Chicago for this work under the auspices of the state health department.

WISCONSIN

Personal.—Dr. Walter J. Urben, Madison, director of the Wisconsin State Public Welfare Department's mental hygiene division since 1942, has been appointed superintendent of the Mendota State Mental Hospital, Mendota.

Anniversary of Occupational Therapy Department.—Milwaukee-Downer College will observe the thirtieth anniversary of its department of occupational therapy March 23. Dr. Howard A. Rusk, chairman, department of rehabilitation and physical medicine, New York University College of Medicine, will present "Today's Challenge to Occupational Therapy." The department of occupational therapy was set up at Milwaukee-Downer in 1918 by Mrs. Carl H. Davis, now of Wilmington, Del., in response to the call of Gen. John J. Pershing for a thousand women volunteers to do bedside occupational work. When in 1918 the term "occupational therapy" was first used, a new profession was born. Marjorie Taylor, director of the department at Milwaukee-Downer from 1929 to 1939, developed the studies into a course leading to a B.S. degree. Miss McNary, who has directed the department since 1939, also conducted courses for the Army during World War II.

GENERAL

Course for Medical Record Librarians.—The American Association of Medical Record Librarians this year will give extension courses throughout the country. Three types of courses are being offered: a two week basic course for beginners, the one week regular course as previously given, and an advanced course, or workshop. Any one working in the medical record department of a hospital is eligible to attend any course unless definite prerequisites are stated. The following programs are scheduled: March 29-April 2, the regular course at Tulsa, Okla.; April 5-16, a two week beginners' course at Houston, Texas; May 23-28, an advanced course at Denver. For information address Edna K. Huffman, R.R.L., American Association of Medical Record Librarians, 18 East Division Street, Chicago.

A Million for Poliomyelitis Research.—The National Foundation for Infantile Paralysis reports as of February new grants and appropriations totaling $1,188,785.40 for research and education in hospitals and other institutions in the United States and Canada. Of the new appropriation, $350,000 is to continue the foundation's physical therapy program, $200,000 for fellowships in professional education and $35,000 for new scientific exhibits. The George William Hooper Foundation, University of California Medical School, Berkeley-San Francisco, was granted $43,090 to continue its study of poliomyelitis epidemics, diagnostic procedures, transmission of the disease and possible reservoirs of the virus. The University of Pennsylvania, Philadelphia, received $136,500 for a five year study to evaluate treatment methods to ameliorate the crippling after-effects of poliomyelitis; Children's Hospital, Philadelphia, $25,000 to continue studies on the effect of dietary factors and nutrition on resistance to poliomyelitis; University of Southern California, Los Angeles, $28,800 to continue studies of types of virus which can cause the disease, and $13,400 for a study of the growth requirements of the virus; Emory University, Atlanta, received $22,880 to develop better methods for diagnosis and $11,300 for a study of differences in muscle cells in relation to susceptibility to paralysis.

Southwest Allergy Forum.—The 1948 meeting of the Southwest Allergy Forum will be held April 5-6, at the Biltmore Hotel, Oklahoma City, under the presidency of Dr. Herbert J. Rinkel of Kansas City, Mo. The program for Monday includes a roundtable discussion on seasonal hayfever. Guest speakers will be Dr. Bernardine T. McMahon, Denver, on "Bronchiectasis" and Dr. Jonathan Forman, Columbus, on "Urticaria." On Tuesday there will be a roundtable discussion on asthma and a talk by Dr. Karl D. Figley, Toledo, president of the American Academy of Allergy.

Dr. Diamond Appointed Technical Director of Blood Program.—Dr. Louis K. Diamond, assistant professor of pediatrics, Harvard Medical School, Boston, was appointed on February 2 technical director of the national blood bank program of the American Red Cross. Dr. Diamond, who has been associated with Harvard Medical School since his graduation in 1927, directed the first large scale blood laboratory, which was established at Children's Hospital, Boston, in 1942.

Elmer Hess Prize in Urology.—The Western New York and Ontario Urological Society announces the annual Elmer Hess Prize, which includes $25 plus the winner's own personal hotel expense while attending the meeting at which the paper will be read. Eligible are residents or interns in urology, or urologists with not more than two years in practice who reside in the society's area. The paper may be on any subject related to urology and shall be limited to ten triplespaced pages. Three copies of the paper should be mailed to Dr N. W. Roome, 170 St. George Street, Toronto 5, Ontario, Canada, before June 1, 1948.

Industrial Physicians and Surgeons Meeting.—The American Association of Industrial Physicians and Surgeons will hold its thirty-third annual meeting at the Hotel Statler, Boston, March 30 to April 2, under the presidency of Dr. Henry S. Brown, Detroit. The program will begin Tuesday morning with a clinic at the Massachusetts General Hospital. Joseph C. Aub, Boston, will speak on "Recent Studies in Beryllium" and Edwin F. Cave and Charles B. Burbank, Boston, on "The Surgery of Trauma." Other speakers include:

TUESDAY

Joseph H. Shortell, Boston, Shoulder Injuries.
William F. Flynn, Boston, Infections of the Hand.
Albert A. Hornor, Boston, Industrial Problem in Diabetes Mellitus.
John D. Adams, Boston, Double Plating of Long Bones, End Results.

WEDNESDAY

Edward E. F. Adolph, Ph.D., Rochester, N. Y., Theodore F. Hatch, Pittsburgh, and Arlie Bock, Boston, Papers on the Subject of Heat.
James M. Dunning, Boston, Public Health Aspect of Dentistry in Industry.
Selden D. Bacon, Ph.D., New Haven, Conn., Alcoholism in Industry.
Oliver Cope and Francis D. Moore, Boston, Management of Burns.
Arthur L. Watkins, Boston, and George G. Deaver, New York, Seminar in Physical Medicine.

THURSDAY

George E. Morris, Boston, The Skin: the Fragile Element in Industrial Production.
Chester S Keefer, Boston, Chemotherapy and Antibiotics.
Howard B Sprague, Boston, Coronary and Other Heart Disease.
Chester M. Jones, Boston, Management of Peptic Ulcer.
Hugh F. Hare, G. Edmund Haggart and James L. Poppen, Boston, Seminar on Back Pain.

The annual banquet will be April 1 at 7 p.m. Dr. Frank H. Lahey, director of the Lahey Clinic, Boston, will speak on "Problems and Advances in Medicine and Surgery."

CORRECTION

Dosage of Antimonium Potassium Tartrate.—The last sentence in the letter to the Editor entitled Schistosomiasis by F. Gordon Cawston, Durban, South Africa, in The Journal, Dec. 27, 1947, page 1167, should read: "An injection of 0.1 Gm. may well be regarded as the maximum."

Deaths

Benjamin Franklin Gallant ✠ Northport, N. Y.; born in Somerville, Mass., March 25, 1879; College of Physicians and Surgeons, Baltimore, 1913; formerly associated with the Gouverneur Hospital, Bellevue and Allied Hospitals and the Lying-In Hospital in New York, Kankakee (Ill.) State Hospital, Lincoln (Ill.) State Hospital, St. Vincent's Hospital in Bridgeport, Conn., and the Mather Memorial Hospital in Port Jefferson; served as resident director of the Charity Hospital and medical director of St. Luke's Private Sanitarium in New Orleans; at one time owner and director of the Belvidere Private Sanitarium in New Orleans and medical director of Dr. Gallant's Neurological Hospital in Pass Christian, Miss.; died Nov. 10, 1947, aged 68, of coronary thrombosis.

Curtis Field Burnam ✠ Baltimore; born Jan. 17, 1877; Johns Hopkins University School of Medicine, Baltimore, 1900; associate professor of surgery at his alma mater; member of the House of Delegates of the American Medical Association in 1915; member of the American Gynecological Society, Southern Surgical Association and the American Radium Society; fellow of the American College of Surgeons; in 1936 received the Janeway Medal from the American Radium Society; co-author with Dr. Howard A. Kelly of "Diseases of the Kidneys, Ureters and Bladder" ; affiliated with the Church Home and Infirmary, Hospital for the Women of Maryland, Johns Hopkins Hospital and the Union Memorial Hospital, where he died Nov. 29, 1947, aged 70, of pneumonia.

J. Ross Hunter ✠ Charleston, W. Va.; born in New Sterling, N. C.; Feb. 26, 1880; Medical College of Virginia, Richmond, 1903; fellow of the American College of Surgeons; member of the board of directors of the American Cancer Society; member of the board of directors and the executive committee of the West Virginia Cancer Society, which he helped to organize; served during World War I; at one time chief of the surgical staff of the Sheltering Arms Hospital at Hansford; one of the organizers, a trustee and for many years superintendent of the Mountain State Memorial Hospital; president of the staff of the Herbert J. Thomas Memorial Hospital in South Charleston; died Dec. 31, 1947, aged 67, of coronary thrombosis.

Hiram Edgar Miller ✠ San Francisco; born in Dixon, Ill., Aug. 30, 1891; University of California Medical School, San Francisco, 1917; clinical professor and chairman of the department of dermatology at his alma mater; specialist certified by the American Board of Dermatology and Syphilology; member of the American Dermatological Association and the American Academy of Dermatology and Syphilology; served in France during World War I; affiliated with the San Francisco, Southern Pacific General, St. Luke's, Mount Zion and Children's hospitals; died in the University of California Hospital recently, aged 56.

Richard Covert Satterlee ✠ Captain, M.C., U. S. Navy, retired, San Francisco; born in Layfayette, Ind., Jan. 13, 1894; George Washington University School of Medicine, Washington, D. C., 1917; specialist certified by the American Board of Pathology, Inc.; entered the medical corps of the U. S. Navy in September 1917; served during World Wars I and II; retired for disability in line of duty; served as executive officer at the U. S. Naval Convalescent Hospital in Yosemite National Park, Calif.; died in the United States Naval Hospital in Mare Island, Calif., May 16, 1947, aged 53, of hypertension.

Benjamin Franklin Hambleton, Houston, Texas; born in 1872; University of Wooster Medical Department, Cleveland, 1900; professor of physiology and pharmacology at Baylor University College of Medicine; formerly professor of physiology and pharmacology at the Vanderbilt University School of Medicine in Nashville, Tenn., where he also served as acting dean and secretary of the medical school; at one time professor of physiology at the Cleveland College of Physicians and Surgeons, Medical Department, Ohio Wesleyan University; died Dec. 9, 1947, aged 75, of coronary occlusion.

Donald Carl Snyder ✠ Colonel, U. S. Army, retired, Longmont, Colo.; born in Belle Plaine, Iowa, March 17, 1896; State University of Iowa College of Medicine, Iowa City, 1919; Army Medical School and Medical Field Service School in 1929; served during World War I; entered the medical corps of the U. S. Army as a first lieutenant in 1927; a lieutenant colonel and colonel during World War II; retired for disability in line of duty on May 31, 1945 with rank of colonel; died in Fitzsimons General Hospital, Denver, Dec. 21, 1947, aged 51, of mitral stenosis and bronchial asthma.

Harry Garrett Miller, Millville, N. J.; born Sept. 11, 1869; University of Pennsylvania Department of Medicine, Philadelphia, 1897; member of the American Medical Association; past president and for many years secretary of the Cumberland County Medical Society; county physician; past president of the city council; member of the U. S. Pension Board for many years; active on the Selective Service Board during World War II; on the staff of the Millville Hospital since its inception, serving as president for four terms; died Nov. 30, 1947, aged 78, of coronary thrombosis.

Archibald John Alcorn, Chicago; College of Physicians and Surgeons, School of Medicine of the University of Illinois, 1900; died recently, aged 80.

Ella Mary Anderson, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1893; died in the Woman's Hospital recently, aged 83, of pulmonary edema.

Pasquale Assante, Philadelphia; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1891; died in the Jefferson Hospital Nov. 22, 1947, aged 82, of arteriosclerosis.

William Simpson Bailey, Poplar Bluff, Mo.; St. Louis College of Physicians and Surgeons, 1898; formerly member of the school board; served as registrar of vital statistics in Butler County; died Nov. 27, 1947, aged 81, of myocarditis.

Howard Roswell Bankerd, Port Townsend, Wash.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; died recently, aged 72, of heart disease.

John Albert Bennett, Elmira, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1905; member of the American Medical Association; died Nov. 21, 1947, aged 67, of cerebral thrombosis and bronchopneumonia.

William Clement Bosley, Houston, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1900; died Nov. 22, 1947, aged 72.

George Cummings Bower ✠ Marcy, N. Y.; University of Buffalo School of Medicine, 1922; specialist certified by the American Board of Pathology, Inc.; fellow of the American College of Physicians; member of the American Society of Clinical Pathologists; associate editor of the Psychiatric Quarterly; director of clinical laboratories at the Marcy State Hospital, where he died Dec. 1, 1947, aged 46.

Melville Grant Boyd, Dalton, Mass.; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1929; member of the American Medical Association; served during World War II; died recently, aged 49, in Kingston, Ontario.

Joseph Holmes Branson ✠ Washington, D. C.; Southern Homeopathic Medical College, Baltimore, 1894; died Nov. 30, 1947, aged 81, of cerebral embolus.

John Q. Brantley, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1905; affiliated with the Crawford W. Long Hospital, where he died Nov. 21, 1947, aged 66, of arteriosclerosis and pneumonia.

Norman Christopher Browand, Hermosa Beach, Calif.; Fort Wayne (Ind.) College of Medicine, 1896; formerly on the staff of the Miami Valley Hospital in Dayton, Ohio; died in Glendale, Calif., Nov. 30, 1947, aged 81, of cerebral hemorrhage.

Edwin Rutherford Butterfield ✠ Burbank, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; died Nov. 29, 1947, aged 63.

James Frank Cadenhead, Weinert, Texas; Fort Worth School of Medicine, Medical Department of Texas Christian University, 1914; member of the American Medical Association; for many years president of the school board; served during World War I, and during World War II chairman of the medical division of the selective service board of Haskell County; died Nov. 21, 1947, aged 56, of carcinoma.

Howard Allen Calvert, Frederick, Okla.; John A. Creighton Medical College, Omaha, 1912; member of the American Medical Association; served during World War I; affiliated with the Frederick Clinic Hospital and the Spurgeon, Arrington and Allen Hospital and Clinic; died Nov. 27, 1947, aged 58, of coronary thrombosis.

William Rogers Castle, Paintsville, Ky.; Hospital College of Medicine, Louisville, 1907; member of the American Medical Association; served as a member of the city council; died Nov. 29, 1947, aged 65, of diabetes mellitus.

Timothy L. Chiasson, ✠ Neponset, Ill.; Loyola University School of Medicine, Chicago, 1916; an examining physician for the county selective service board during World War II; member of the local board of health; affiliated with the Public Hospital and St. Francis Hospital in Kewanee; died Dec. 6, 1947, aged 60, of coronary heart disease.

Floyd Clardy ⊕ Hot Springs National Park, Ark.; University of Tennessee College of Medicine, Memphis, 1916; served during World War I; affiliated with the Methodist Hospital and St. Joseph's Infirmary; died Nov. 22, 1947, aged 59, of hypertension and cerebral hemorrhage.

Eliza Cook, Gardnerville, Nev.; Cooper Medical College, San Francisco, 1884; died recently, aged 91.

Thomas Joseph Coyne ⊕ Boston; Tufts College Medical School, Boston, 1901; affiliated with Children's, St. Elizabeth, St. Margaret's and Harley hospitals; died Dec. 4, 1947, aged 75, of heart disease.

William Henry Crawford, Jackson, Miss.; John A. Creighton Medical College, Omaha, 1914; served during World Wars I and II; affiliated with the Veterans Administration Hospital; died Nov. 25, aged 58, of postoperative shock.

Whitfield Walker Crook ⊕ Cuthbert, Ga.; University of the South Medical Department, Sewanee, Tenn., 1908; served during the Spanish-American War and World War I; died Nov. 11, 1947, aged 67, of heart disease and pulmonary embolism.

James Erric Cudd ⊕ Spartanburg, S. C.; University of Maryland School of Medicine, Baltimore, 1916; for many years county physician; died in Mary Black Memorial Hospital Nov. 14, 1947, aged 56, of acute pancreatitis.

Hyman Dickman, Philadelphia; Maryland Medical College, Baltimore, 1911; died recently, aged 64, of cerebral thrombosis and diabetes mellitus.

Gustave William Dishong ⊕ Omaha; born in San Francisco, Nov. 9, 1874; John A. Creighton Medical College, Omaha, 1907; for many years professor and head of the department of nervous and mental diseases at his alma mater, where in 1939 he retired with the title of professor emeritus; fellow of the American College of Physicians; member of the American Psychopathological Association; served in France during World War I; affiliated with St. Joseph's Hospital, where he died Nov. 24, 1947, aged 73, of carcinoma of the rectum.

Henry Aaron Dittmer, Manchester, Iowa; the Hahnemann Medical College and Hospital, Chicago, 1884; died Nov. 26, 1947, aged 89, of senility.

Libby Russell Doll, St. Louis; American Medical College, St. Louis, 1901; died Nov. 9, 1917, aged 75, of heart disease.

Walter Livingston Dunning ⊕ Paterson, N. J.; Long Island College Hospital, Brooklyn, 1898; died Nov. 29, 1947, aged 71, of myocardial infarction and arteriosclerosis.

Mark Matthew Duffy, Chicago; Bennett Medical College, Chicago, 1915; received the Distinguished Service Cross for bravery in France during World War I; died Dec. 11, 1947, aged 57, of acute cardiac dilatation.

Sarah May Edwards, Bloomfield, N. J.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1899; died in the Community Hospital, Montclair, Nov. 23, 1947, aged 78, of cerebral hemorrhage and hypertension.

William G. Estill, Lawson, Mo.; Missouri Medical College, St. Louis, 1883; died Nov. 27, 1947, aged 87, of cardiorenal disease.

Joseph Otto Evans, Linden, N. J.; Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main, Prussia, Germany, 1922; member of the American Medical Association; school physician; physician for the child health clinic of the board of health; died Nov. 23, 1947, aged 49, of myelogenous leukemia.

William Rollie Ferster, Kansas City, Mo.; University Medical College of Kansas City, Mo., 1908; member of the American Medical Association; died Nov. 11, 1947, aged 74, of cerebral hemorrhage, hypertension and hypertrophic arthritis.

Simon Sylvester Foster, Atlanta, Ga.; University of Tennessee College of Medicine, Memphis, 1911; at one time company physician for the Stearns Coal and Lumber Company in Stearns, Ky.; for many years on the staff of the Veterans Administration Hospital; died Nov. 27, 1947, aged 60, of coronary occlusion.

Claude Augustine Frink ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1902; fellow of the American College of Surgeons; formerly a lieutenant in the U. S. Naval Reserve; surgeon at the Knickerbocker Hospital; died recently, aged 71, of heart disease.

James De Witt George, Los Angeles; Indiana University School of Medicine, Indianapolis, 1926; member of the American Medical Association; served on the staff of the Compton (Calif.) Sanitarium and as chief resident physician at the William H. Coleman Hospital for Women, Indianapolis; died Nov. 16, 1947, aged 48.

Thomas M. Glasgow ⊕ Passaic, N. J.; Baltimore Medical College, 1902; on the staff of the Passaic General Hospital; died Nov. 29, 1947, aged 69, of coronary thrombosis.

Marvin Myers Gould ⊕ Surgeon, Lieutenant Commander, U. S. Navy, retired, Boston; entered the U. S. Navy in June 1919; retired June 30, 1939; served during World War II; on Jan. 24, 1943 the Navy Department announced the award of a letter of commendation for his services in caring for victims of the Cocoanut Grove fire in Boston on Nov. 28, 1942; died at Barranquilla, Colombia, Nov. 14, 1947, aged 57.

Moritz Gross ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1898; affiliated with the Park West Hospital; died in the Beth David Hospital recently, aged 74.

Gordon Milton Grundy ⊕ Newport Beach, Calif.; McGill University Faculty of Medicine, Montreal, Canada, 1913; served during World War I; died in St. Joseph Hospital, Orange, Calif., Dec. 16, 1947, aged 61, of cerebral hemorrhage.

Charles Nicholas Harper ⊕ New York; University of Virginia Department of Medicine, Charlottesville, 1915; specialist certified by the American Board of Otolaryngology; affiliated with the Roosevelt Hospital; died Nov. 26, 1947, aged 57, of heart disease.

John Calvin Hartman ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1917; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; served during World War I; affiliated with the Abington (Pa.) Memorial Hospital and Germantown Hospital; died Dec. 13, 1947, aged 56, of coronary thrombosis.

Charles Cheves Haskell ⊕ Richmond, Va.; Harvard Medical School, Boston, 1908; at one time professor of physiology and pharmacology at the Medical College of Virginia; president of the Charles C. Haskell Company; affiliated with the Johnston-Willis Hospital; died Nov. 12, 1947, aged 67, of cerebral hemorrhage.

Selmar Frederick Hauser, Covington, Ky.; University of Cincinnati College of Medicine, 1916; served in France during World War I; member of the American Medical Association; died in St. Elizabeth Hospital Nov. 26, 1947, aged 54.

Thomas Southall Hawkins, Baltimore; Howard University College of Medicine, Washington, D. C., 1900; died recently, aged 77, of carcinoma of the prostate.

Frederick Edward Hesser, Baltimore; Southern Homeopathic Medical College, Baltimore, 1904; served on the staff of the Church Home and Infirmary; died in Shamokin, Pa., Nov. 24, 1947, aged 72, of cerebral thrombosis and bronchopneumonia.

George H. Hocking ⊕ Baltimore; University of Maryland School of Medicine, 1879; an Affiliate Fellow of the American Medical Association; died Nov. 25, 1947, aged 92, of arteriosclerosis and pneumonia.

Benjamin F. Humphrey, Sturgis, Ky.; University of Louisville (Ky.) Medical Department, 1901; past president of the school board; died Nov. 25, 1947, aged 70, of coronary thrombosis.

Walter Eugene Hurley ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1908; also a graduate in pharmacy; examiner for the local draft board during World War I; for many years affiliated with St. Catherine's and St. Mary's hospitals; died in the Mercy Hospital, Rockville Centre, Dec. 14, 1947, aged 66, of carcinoma of the rectum.

Herman Samuel Jacobs, New York; University and Bellevue Hospital Medical College, New York, 1908; died Nov. 10, 1947, aged 61.

Carl Emanuel Johnson, Pine River, Minn.; Rush Medical College, Chicago, 1903; member of the American Medical Association; died in Fort Dodge, Iowa, Nov. 11, 1947, aged 74, of arteriosclerosis and paralysis agitans.

John Francis Kelly, Scranton, Pa.; Cornell University Medical College, New York, 1910; member of the American Medical Association; affiliated with the Mercy Hospital, St. Mary's Hospital and the Scranton State Hospital, where he died Nov. 30, 1947, aged 64, of uremia.

Richard James Kelly ⊕ New York; University of Pennsylvania School of Medicine, Philadelphia, 1928; specialist certified by the American Board of Dermatology; member of the American Academy of Dermatology and Syphilology; affiliated with the Vanderbilt Clinic and Roosevelt Hospital; died Nov. 27, 1947, aged 45, of a skull fracture.

Peter Ernest Kierland ⊕ Alexandria, Minn.; Rush Medical College, Chicago, 1902; died Nov. 26, 1947, aged 69, of coronary thrombosis.

Charles Kleiman ⊕ Orangeburg, N. Y.; Tufts College Medical School, Boston, 1931; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the American Psychiatric Association; associate in neurology and psychiatry at the Long Island College of Medicine in Brooklyn; affiliated with the Rockland State Hospital; died Nov. 20, 1947, aged 42, of coronary thrombosis.

Mary Jeannette Lower, Kansas City, Mo.; Southwest School of Medicine and Hospital, Kansas City, 1916; member of the American Medical Association; died in Burlington, Iowa, Nov. 27, 1947, aged 80.

Robert Price McClellan ⊕ Irwin, Pa.; Jefferson Medical College of Philadelphia, 1888; chairman of the board of directors and past president of the First National Bank; died in the Westmoreland Hospital in Greensburg, recently, aged 84, of injuries received in an automobile accident.

Ward Benefiel McMakin, Camas, Wash.; Eclectic Medical Institute, Cincinnati, 1903; member of the American Medical Association; died recently, aged 71.

John Bowdoin Mears ⊕ Medical Director, Captain, U. S. Navy, retired, Keller, Va.; University of Virginia Department of Medicine, Charlottesville, 1901; entered the U. S. Navy in 1905 and retired Sept. 1, 1936 for incapacity resulting from an incident of the service; died Nov. 16, 1947, aged 68.

Hugh William Mullins, Helena, Mont.; Loyola University School of Medicine, Chicago, 1919; formerly affiliated with Alexian Brothers' and St. Mary of Nazareth hospitals in Chicago; died in St. John's Hospital Dec. 7, 1947, aged 61, of intestinal carcinoma.

Joseph Berchmain O'Neill, Pawtucket, R. I.; University of Maryland School of Medicine, Baltimore, 1900; died recently, aged 76.

John Randolph Quinn Jr., New York; Cornell University Medical College, New York, 1913; died in St. Luke's Hospital recently, aged 60.

Arthur T. Revell, Columbus, Kan.; Kansas City (Mo.) Medical College, 1900; member of the American Medical Association; affiliated with Mount Carmel Hospital in Pittsburg, where he died recently, aged 69, of cerebral hemorrhage and pneumonia.

Alonzo Leroy Reynolds, Webster Groves, Mo.; Meharry Medical College, Nashville, Tenn., 1927; examining physician for the board of education; served on the staffs of the Homer G. Phillips Hospital and St. Mary's Infirmary, in St. Louis, where he died recently, aged 49, of pyloric obstruction and gastric hemorrhage.

Ralph Dresden Robinson ⊕ Mount Vernon, Ill.; University of Tennessee College of Medicine, Memphis, 1935; past president of the Tillman County (Okla.) Medical Society; member of the Missouri State Medical Association; served during World War II; served as a member of the department of medicine and surgery of the Veterans Administration and assigned to the surgical section of the veterans' hospital in Fort Bayard, N. Mex.; died in the Veterans Administration Hospital, Topeka, Kan., recently, aged 38, of diabetes mellitus.

Neff Lloyd Ross, Colorado Springs, Colo.; Yale University School of Medicine, New Haven, 1946; interned at the University Hospitals; died recently, aged 25, of Hodgkin's disease.

Boyd Willamber Schaffner, Akron, Ohio; Jefferson Medical College of Philadelphia, 1902; member of the American Medical Association; died recently, aged 71, of heart disease.

Charles Edward Seale, Houston, Texas; Louisville (Ky.) Medical College, 1905; affiliated with the Park View Hospital; died recently, aged 66, of heart disease.

Edgar L. Simonton, Wendell, Idaho; Kansas City (Mo.) Medical College, 1896; member of the American Medical Association; died in Rochester, Minn., Nov. 27, 1947, aged 78, of uremia and prostatic hypertrophy.

Edward I. Sloan, Fort Lauderdale, Fla.; Loyola University School of Medicine, Chicago, 1918; formerly associated with the U. S. Public Health Service; served on the staff of the U. S. Marine Hospital in Chicago; died recently in Chicago, aged 64, of coronary disease.

George McClelland Speck, Huntingdon, Pa.; Jefferson Medical College of Philadelphia, 1888; died recently, aged 84, of arteriosclerosis.

Nathaniel L. Spengler, Tampa, Fla.; University of Maryland School of Medicine, Baltimore, 1903; member of the American Medical Association; died in the Tampa Hospital Nov. 28, 1947, aged 69, of myocardial failure.

Seth Billington Sprague ⊕ Jersey City, N. J.; Baltimore Medical College, 1906; fellow of the American Academy of Orthopedic Surgeons; formerly on the faculty of the New York Post-Graduate Medical School and Hospital, Columbia University; affiliated with Hudson County Tuberculosis Hospital, Margaret Hague Maternity Hospital and Christ Hospital; member of the city medical advisory board during World Wars I and II; died in the Memorial Hospital in New York, Nov. 23, 1947, aged 69, of pneumonia.

Frank Bell Steele ⊕ St. Petersburg, Fla.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; member and formerly secretary of the Utah State Medical Association; fellow of the American College of Physicians; specialist certified by the American Board of Internal Medicine; served on the staffs of Veterans Administration hospitals in various cities; died recently, aged 73.

Arthur Tumpin Stevens, Tampa, Fla.; Hospital Medical College, Atlanta, 1911; member of the American Medical Association and the Medical Association of Georgia; died in Bay Pines, Nov. 29, 1947, aged 72, of coronary thrombosis.

Henry Barrell Strock, Bedford, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1894; for many years president of the school board; died Nov. 29, 1947, aged 79, of arteriosclerosis.

Harry Alfred Terry, Tampico, Ill.; Washington University School of Medicine, St. Louis, 1904; died recently, aged 69.

Willie Burt Trammell, Lawrenceville, Ga.; University of Georgia School of Medicine, Augusta, 1940; served as health commissioner; died recently, aged 33.

Frank Herbert Underwood, Monongahela, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1894; member of the American Medical Association; affiliated with Memorial Hospital; died in Mercy Hospital, Pittsburgh, recently, aged 78, of cerebral hemorrhage.

Lionel O. Waguespack, Vacherie, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1900; member of the American Medical Association; died Nov. 3, 1947, aged 69.

Bishop Billings Warwick, Talladega, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1902; member of the American Medical Association; past president and secretary of the Talladega County Medical Society; served overseas during World War I; for many years county health officer; staff physician of the Alabama Institute for Deaf and Blind; died in New Orleans recently, aged 68, of coronary thrombosis.

Samuel Melville Waterhouse ⊕ Colonel, U. S. Army, retired, Scarsdale, N. Y.; Medical College of Ohio, Cincinnati, 1894; entered the regular army as an assistant surgeon on July 23, 1898; served during World War I; retired from active service Aug. 6, 1920 for physical disability incident thereto; died in Palm Beach, Fla., Feb. 19, 1944, aged 73, of thrombosis.

Leonard Gruner Weber ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1900; fellow of the American College of Physicians; served on the staffs of Lenox Hill Hospital and the Manhattan Eye, Ear, Nose and Throat Hospital; died Nov. 30, 1947, aged 69, of coronary sclerosis.

W. Frank Wells, Atlanta, Ga.; Atlanta School of Medicine, 1911; member of the American Medical Association; fellow of the American College of Surgeons; twice mayor of Hapeville, Ga.; affiliated with the Grady Hospital and the Georgia Baptist Hospital, where he died Nov. 7, 1947, aged 63, of cerebral hemorrhage.

Charles D. Williamson, Three Rivers, Texas; College of Physicians and Surgeons, Dallas, 1906; member of the American Medical Association; past president of the Bee-Live Oak-McMullen Counties Medical Society; died recently, aged 78, of carcinoma.

Benjamin Franklin Windle, Bois D'Arc, Mo.; Barnes Medical College, St. Louis, 1897; affiliated with the Baptist Hospital in Springfield; died recently, aged 72, of coronary thrombosis.

Elizabeth Mildred Yates, Santa Rosa, Calif.; Cooper Medical College, San Francisco, 1887; member of the American Medical Association; died recently, aged 94, of arteriosclerosis.

Patrick Joseph York, Brooklyn; Long Island College Hospital, Brooklyn, 1897; for many years police surgeon; affiliated with Kings County Hospital, Long Island College Hospital and St. Peter's Hospital, where he died Nov. 25, 1947.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 31, 1948.

The Struggle over the National Health Service

The greatest crisis in the history of the medical profession in this country is reached as the plebiscite of the whole of its members is taken by the British Medical Association to ascertain exactly the position of the profession with regard to the National Health Service. Reports from all parts of the country suggest, says the *British Medical Journal,* that an overwhelming majority of doctors are radically opposed to the service in its present form. They are convinced that it is the first step toward full time service. However, there is a minority, whose exact size will be ascertained by the plebiscite, who are in favor of accepting the service. This view is advocated by the *Lancet,* while suggesting concessions to meet the objections of the profession. It argues that National Health Insurance, which was introduced in 1913 for only wage earners, against the will of most of the profession, has proved advantageous both to the public and the profession, so that in 1930 the British Medical Association was recommending its extension with improvements. The association is now in favor of this extension in place of the present scheme, but the socialist government on its own initiative and without any opposition has extended free medical attendance of all kinds, domiciliary and hospital, general practitioner and specialist, to rich and poor alike. The *Lancet* holds that there are cogent reasons for this. The cost of illness now falls disastrously on the middle class. The negotiating committee of the profession accepted the inclusion of all, rich and poor. It thus agreed, wisely or unwisely, that the profession must henceforth work within the framework of a public service and no longer depend on private fees.

Evidently with the intention of "throwing oil on the troubled waters" the *Lancet* has submitted nine questions to the Minister of Health, which, with his answers, are published in the *British Medical Journal* as well as the *Lancet.* The intention of the government is that the main source of the doctor's income shall be by capitation. The advantages of the basic salary are that it enables beginners to live while they attract patients and that it affords a convenient peg on which to hang additional payments, such as for sparsely populated areas, and reduces the temptation to try to build up excessively long patient lists.

The sale of practices has been condemned by some reformers, but there are great difficulties in abolishing a custom which is the financial backbone of general practice in this country. In partnerships there usually are agreements that in case of the death or retirement of one of the partners, those who remain are bound to buy the share of the outgoing man. If the sale of practices were abolished a man might be compelled to buy what had ceased to have a commercial value. With regard to the difficulties in the carrying out of partnership agreements produced by the act, the minister proposes to obtain a collective legal opinion. If there is any evidence that existing partnerships are unfairly prejudiced by the act he will seek an amendment. There is no doubt that by compromise, at which the English are known to be so adept, agreement could be reached without much difficulty on the various objections raised by the profession, except the fundamental one of the nationalization of physicians—making them salaried officials. The minister says that this is not proposed now, but that he cannot answer for future ministers of health. However, it is known that this intention is approved by the leaders of the labor party. The government is nationalizing the big industries one after another. It would like to nationalize the medical profession, but practical difficulties oblige it to proceed by steps. A very large one was taken when free medical attendance for all was provided in the National Health Insurance Act, without any opposition from the medical profession. "We are all socialists now," said a great conservative leader, the late Lord Salisbury, who certainly had no sympathy with socialism. The truth of that adage is again illustrated in the present crisis.

The council of the British Medical Association has issued a statement declaring that the decision is of the profoundest importance to the public and the medical profession. The conflict is based on the profession's conviction that the act leads unmistakably toward a whole-time state medical service, which would be harmful to medicine. In the negotiations with the Minister of Health, Mr. Bevan, the representatives of the profession sought some changes, both of principle and of detail, but he refused to modify one word of the act. The council of the medical association will abide by the result of the plebiscite, as defined on the form, but its carefully considered and determined view is that the profession should not take service under the act in its present form.

The opposition of consultants and specialists to the act is just as great as that of general practitioners. In a meeting held at the house of the British Medical Association they rejected the act in its present form by a majority of 766 to 11. Among the speakers, Lord Horder appealed to his fellow consultants to halt the mad march of totalitarianism. "If we yield," he said, "to this concentration of power to one man we shall be selling our heritage and things will get worse." Mr. Dickson Wright, a surgeon, stressed that under the act the medical committees in hospitals would cease to function. Consultants whose services had established British hospitals in their preeminent position would become paid servants without a vote in their administration. A state medical service would require an army of civil servants, which would provide a good living for men who had not to spend six years in qualifying. The following resolution was proposed and carried, 766 to 11: "In the opinion of this meeting, consultants and specialists should not take service until the act has been modified and agreement reached for the good of the profession as a whole." Meetings of the staffs of the great London hospitals—Guy's, St. Bartholomew's, London, St. George's and the Great Northern—have rejected the proposed service by similar majorities, in one case unanimously.

Rejection of the National Health Service by the British Medical Association

A special meeting of the Representatives of the British Medical Association has unanimously passed a resolution that the National Health Service in its present form is so grossly at variance with the essential principles of the profession that it should be rejected absolutely by all practitioners. The *British Medical Journal* says: "Doctors are now fully alive to the implications of the Act and becoming firm in their resolve to say 'No' to a Minister whose method of negotiation is to alternate blandishments with threats in his successful attempt to avoid discussing those matters which the negotiating committee consider fundamental points of disagreement between the medical profession and the Ministry of Health. . . . The medical profession is in a strong position and should be more conscious of the fact. Its services are indispensable to the welfare of the community and will, of course, never be withheld, but it can determine the conditions of its work and insist on maintaining a framework of liberty and freedom which at the same time includes order."

In the negotiations between the medical profession and the government the three main objections to the scheme are the small basic salary for practitioners (in addition to the capitation fees), the abolition of the sale of practices within the service and the refusal of a right of appeal to the courts of law by a doctor dismissed from the service by an official decree. The objection to the basic salary is that it seems to be "the thin end of the wedge" of complete payment by salary, which would convert the practitioner into an official under the complete control of the government. This is the avowed policy of the labor party but has not been pressed for tactical reasons. In the words of the minister of health himself, "one does not pick fruit when it is green, one waits till it is ripe."

Research on the Common Cold

Much research on the common cold has recently been done in this and other countries. At the Royal Society of Arts Dr. C. H. Andrewes, F.R.S., of the National Institute for Medical Research, gave a lecture on the subject. He said that a few clues are now being found as to how colds are spread, what causes them, and how they can be prevented or cured. In ordinary life it is possible to catch cold from much exposure in the presence of a little virus, or from very moderate exposure in the presence of much virus. A trapper in Spitzbergen contracted a cold after contact with a center of civilization. Six weeks later he fell through the ice and his cold returned. The attitude of his fellow trappers was, "silly ass for going into town." Arctic explorers away from civilization caught no colds.

Experiments are in agreement with the idea that resistance to a cold does not depend on when one has had one's last cold but on other factors, not at all understood. Colds are commoner in winter than in summer, but in America instead of the waves of cold traveling southward from the Northern states which have cold weather soonest—the waves occur almost simultaneously from the colder Canadian border down to the Gulf of Mexico. Sudden changes in temperature might precipitate colds more readily in summer than in winter. Cold weather could perhaps act indirectly by making people crowd together indoors, but crowding hardly could be all important, otherwise why do not colds spread in rush hours in tube trains in July? In tests at Harvard Hospital, Salisbury, England, it was found that bacteria-free filtrates from sufferers from colds produced colds in about 50 per cent of subjects. The time from inoculation to onset was usually two or three days. They could store the active agent for over six months at minus 76 C. in carbon dioxide snow and still obtain "takes."

Some recent evidence suggested that more unpleasant germs were spread from the nose than from the mouth and throat, which led to the question whether bacteria and viruses accidentally shaken from handkerchiefs might not be of infective importance. Tests showed that many bacteria might be shaken out and remain in the air. Handkerchiefs used in the later stages of colds were found to be particularly effective as germ distributors. Work now in progress suggests that impregnation of handkerchiefs with a disinfectant might make them much less dangerous in this respect.

The Roentgen Examination of Emigrants

The first of two complete units of x-ray equipment brought to Britain by the Ontario government to facilitate the medical examination of prospective air migrants has been unloaded at the Northolt airport. The unloading was supervised by Dr. G. Clair Brink, director of the division of tubercular prevention, Ontario Department of Health, who was accompanied by Mr. J. S. P. Armstrong, agent general for the province. The units will be set up at the province's air emigration offices in London, England, and Glasgow, Scotland. In an interview Dr. Brink said that the equipment would not only facilitate the medical examination of emigrants but would preclude the possibility of an emigrant with active tuberculosis being separated from his family by delayed detection. Accepted emigrants and members of their families would be examined free.

ITALY

(From Our Regular Correspondent)

Florence, Dec. 30, 1947.

Surgical Treatment of Pulmonary Tuberculosis

At a meeting in Naples sponsored by the Sanatorial Institute and the Association for the fight against tuberculosis, Professor Zandonini discussed the combined treatment of endocavitary aspiration and thoracoplasty. In his 9 patients treatment was limited to the use of a cannula and the procedure was not a completely closed one. In 1 patient among those treated a permanent cavity was observed after thoracoplasty, which he attributed to a persistent opening of the bronchus. Research is required, he said, for the removal of this cause of failure.

From his experience and that of others Zandonini concludes that endocavitary aspiration as a preparatory stage for thoracoplasty is the method of choice for the treatment of large cavities of the upper pulmonary lobe. This method offers the advantages of shortening the postoperative course and of providing for a much more favorable prognosis. It reduces the number and the extent of the removal of ribs.

Professor Biancalana of the University of Turin also discussed endocavitary aspiration. In contrast to collapse therapy, it aims to modify the endocavitary conditions, and those of the bronchi for drainage, which have an important part in the closure of the cavity. As yet insufficient time has elapsed to accurately evaluate the method or the associated technical difficulties. It took a long time and laborious adjustment for thoracoplasty to reach its present position as the principal method of collapse therapy. Endocavitary aspiration cannot compete at present with thoracoplasty and extrapleural pneumothorax, which give a recovery rate of about 75 per cent of patients so treated. But there remains a group of patients in whom, because of the grave general condition or the extent of the cavity, collapse therapy is associated with great risk. In these instances the aspiration method as initial treatment seems to be more rational. With aspiration alone one cannot obtain definite closure of a large tertiary cavity, but it is a great advance if one succeeds in reducing the cavity by means of aspiration so that permanent recovery may result from a secondary thoracoplasty or if one considers it safe to carry out surgical intervention in a patient who has first been considered inoperable. Better results have been obtained with thoracoplasty combined with aspiration when the latter was performed prior to thoracoplasty in order to disintoxicate the patient or reduce the extent of the cavity.

The technic of aspiration, which may be carried out easily in some cases, is associated with hazards which can be prevented by continuous care. The application of drainage, the apparatus and the technic, its duration and the choice of the right time for performing the thoracoplasty are all important. The speaker emphasized that the number of his cases is too small to discuss final results.

Professor Biancalana suggested that all surgeons report not only the favorable cases but also the unfavorable ones so that steady improvement could occur with a method which may help some patients, who formerly were not considered suitable subjects for collapse therapy, to be cured by thoracoplasty.

Transmission of Poliomyelitis Virus to Animals

At a meeting of the medicosurgical society of Bologna, Professor G. Salvioli discussed the susceptibility of some animals to the virus of poliomyelitis. The author stated that besides monkeys other species of animals are susceptible to the virus of acute anterior poliomyelitis; his studies at the pediatric clinic and at the antipoliomyelitis center confirm his hypothesis. The cat was the first animal experimented on; after inoculations of various types of virus the animal presented a transmissible fatal syndrome with intestinal manifestations. A paralytic syndrome was exceptional.

According to Professor Salvioli, new fields of study may be opened. The entire epidemiology of poliomyelitis should be reviewed, because innumerable reservoirs of the virus may be considered. Professors Salvioli and Sternini submitted a report of their studies on the transmission of the virus to animals by describing the aspect of the disease in cats after inoculation with virulent material. The inoculation was made by intraventricular, intracerebral or intramucosal route with the Heine-Medin meningitic fluid, or by rectointraintestinal or duodenal route with a suspension of fecal material by means of a tube or by the parenteral route with the filtrate of the same material. For successive passages suspensions of scrapings from the intestinal mucosa or filtrates of such suspensions were employed by the intraintestinal or parenteral route, respectively.

The inoculated cat presented a fatal syndrome which was transmissible to animals. Finally there were obtained three passages with an accentuated or precipitated symptomatology, dominated by severe diarrhea associated with emaciation, asthenia, tremor and mild fever. Death occurred within a few days. These phenomena were not confirmed in controls treated with the cerebrospinal fluid or feces of normal subjects. In 2 instances flaccid paralysis of one limb was observed.

Among the few animals which survived, some were inoculated with virulent scrapings from the mucosa kept in contact with convalescent serum. This fact suggests that in the morbigenous material which has been employed there may have been present an agent which has been neutralized by the serum of subjects convalescing from poliomyelitis.

Views on Iron in Animals and in Therapy

At the Academy of Science in Ferrara, Dr. Tria discussed the distribution of iron in the organs during various periods of life and the significance of iron in relation to various physiologic conditions. The speaker discussed the recent research by Lemberg and his co-workers on the derivatives of hemoglobin with open cycle, the research of Agner on verdoperoxidase and that of Goddard on cytochrome C.

He recalled the modern views on circulating iron, with particular consideration of ferritinic iron, referring to the research by Laufberger, Tria, Kuhn, Granick and co-workers. Finally he summarized the theory by Granick on the physiologic importance of ferritin on the metabolism of iron.

Dr. Rietti discussed iron therapy, emphasizing the action of iron on hemoglobin deficiency and that of plasmatic, nonhemoglobinic iron. He also discussed certain conditions of cellular hyposiderosis characterized by changes of the skin, of its adnexa and of the mucosa which may be influenced by treatment with iron. The use of radioactive iron has opened new means for study of iron and its effect on diseases of various types.

With regard to infectious anemia, the speaker emphasized that one is not dealing with a true anemia of iron deficiency; based on his data on experimental allergy he suggested that the influence of some sensitization may explain the disturbances of metabolism of iron associated with infection.

Iron seems to have an inhibiting effect on hemolysis; there is an increase in anabolic activity in the course of exchange of pigments and a favorable influence may be exerted in some cases of hemolytic icterus with increased globular resistance, of Rietti-Greppi-Micheli type, in which the resorption and the utilization of iron may be prevented by gastric changes of mesenchymal origin.

OSLO

(From Our Regular Correspondent)

Jan. 11, 1948.

Compulsory BCG Vaccination

The most outstanding medical event in Norway last month was the adoption by the Storting of a law providing for compulsory tuberculin testing and vaccination against tuberculosis of certain groups in the community who are most in danger of this disease. This law is framed with the contingency in mind that an even more effective vaccine than BCG may ultimately be discovered. Hence the omission of any direct reference to the vaccine by name. But it is, of course, BCG vaccination for which this law provides. The Norwegian Department for Social Affairs, responsible for public health measures, has issued a comprehensive memorandum designed to initiate the country's legislators into the history of, and arguments for, this type of vaccination. A perusal of this memorandum makes it clear why this radical measure against tuberculosis encountered so little opposition in the Storting: one reads how the Norwegian public health authorities consulted everyone concerned before preparing the final draft of the law. Among other organizations in favor of it was the Norwegian Tuberculosis Doctors' Association, which in November 1946 unanimously passed a resolution in favor of compulsory BCG vaccination of youngsters at the time they left school, of conscripts and other young folk much exposed to infection.

In parts of Norway there is considerable opposition to vaccination against smallpox, whereas there is practically no such opposition to vaccination against tuberculosis. Probably this is so because smallpox is little more than a name to the man in the street, whereas everyone knows all too well what tuberculosis means. For example, in 1941, in this country with a population of only 3,000,000, there were more than 21,000 persons under the supervision of the public health authorities because they had infectious tuberculosis.

Diagnostic Possibilities of BCG

Hitherto unpublished investigations conducted at the Ullevaal Hospital by Drs. H. J. Ustvedt and A. Aanonsen suggest that BCG vaccine may be employed as a substitute for the Pirquet and Mantoux tuberculin tests. Through a drop of BCG (20 mg. in 1 cc.) applied to the skin, these investigators make two small punctures with two gramophone needles on a holder. They describe three types of reaction easily distinguished from each other. The first (nonspecific) reaction is rare, appearing in a day and usually disappearing in two or three days. Most interest centers about the second type: Beginning on the second or third day and reaching its maximum on the sixth or seventh day, it consists of a definitely infiltrated, brownish red papule 2 to 10 mm. in diameter. When this reaction is severe, the reaction to the tuberculin test is invariably positive. The third type of reaction appears on the tenth to the fourteenth day and is similar to the ordinary BCG reaction in a tuberculin-negative person.

To return to the second type of BCG reaction, the "positive early reaction," it is an example of Koch's phenomenon; it seems to be a more sensitive and specific test of an active tuberculous infection than the Mantoux test with 1 mg. of tuberculin. It is suggested that BCG thus employed is capable of distinguishing between infected and noninfected persons who are tuberculin-negative. When the Pirquet test is negative and the Mantoux test is positive, this BCG test may decide whether a positive Mantoux reaction is specific or nonspecific. For more than a year these investigations have been conducted on about 400 persons, and it is to be hoped that more will soon be heard of this new use of BCG.

Correspondence

CUTANEOUS STAINS

To the Editor:—The suggestion by Dr. Cornbleet, "Cutaneous Stains Removed with Chemical Depilatories" (The Journal, page 573, Nov. 1, 1947), indicates that an old, convenient, reliable and safe method for removing cutaneous grime and stains is not as familiar to physicians today as it was forty years ago. It used to be, and presumably still is, also in common use by some mechanics, chemists, dyers and others whose work leaves their hands grimy and stained.

It consists of washing with a solution of potassium permanganate, rinsing with water, washing with a solution of sodium bisulfite, $Na_2S_2O_5$ (not bisulfate), and finally rinsing with water until the skin no longer feels slippery.

The potassium permanganate oxidizes the sebaceous and other loose organic matter on the skin, loosening the grime. It also oxidizes and decolorizes practically all organic dyes and pigments including merbromin ("mercurochrome"), sodium ethylmercurithiosalicylate ("merthiolate"), nitromersol ("metaphen") and gentian violet and also hair pigments. It leaves behind a brown stain of manganese dioxide which, if left alone, takes, as Dr. Cornbleet states, days to wear off.

The sodium bisulfite solution reduces the manganese dioxide and dissolves the resulting manganous oxide, leaving the skin clean and smooth. Sulfur dioxide is released in this reaction, giving a noticeable odor, but its concentration is not sufficient to be troublesome. Sodium bisulfite alone will remove iodine stains.

The method used by workmen in cleaning their hands is to pour about a teaspoonful of finely crystalline potassium permanganate into the palm of the hand, moisten it with water and rub it gently around until the hands are wholly covered with the dark brown stain. This is not a scrubbing process. It is merely a convenient method of bringing a concentrated solution into contact with the skin to be cleaned. Scrubbing is not necessary, and hard rubbing is to be avoided because the crystals, like any grit, can, if rubbed on too hard, roughen and even abrade the skin. Particular attention is paid to working the crystals under the finger nails to insure thorough cleansing.

The hands are then rinsed, and finely crystalline sodium bisulfite is applied in the same manner until the brown stain disappears. This ordinarily takes only a few minutes. If the grime and stains have not been completely removed the whole process is repeated. The final rinse until the skin no longer feels slippery removes practically all the remaining sodium bisulfite. I know of no other method which is as effective in cleaning grimy finger nails.

For stains on other body surfaces it is usually more convenient to make up the solutions and apply them by patting with a swab. On delicate skins the solutions should not be concentrated but should be diluted with an equal volume of water. The oxidation of a dye or pigment and the reduction of manganese dioxide release energy in the form of heat. If the solutions are concentrated the heat released may sometimes be sufficient to be uncomfortable on delicate skin and may even cause a temporary erythema, which may last for a day or so. This does not cause permanent damage but is preferably avoided. With dilute solutions it may be necessary to repeat the procedure several times before a stain is completely removed.

There is only one other caution necessary. If used locally on the scalp it leaves an area of bleached hair which may in some cases be more conspicuous than the stain which was removed.

Since solutions of sodium bisulfite have a p_H of about 4 to 4.7, the little that is left on the skin after the final rinse is much less likely to irritate it than the popular, much more acid, "vinegar hair rinse," with its p_H of about 2.

I have been told that if this method is used too frequently it will ultimately irritate the skin. However, I have in the past used the concentrated solutions for cleaning my hands sometimes as often as twice a day for weeks at a time with no resultant irritation.

L. B. Tuckerman, Washington, D. C.

Comment.—The practice outlined in this letter is still used by manufacturing pharmacists, chemists and other laboratorians to remove stains in the course of their work. When solutions of potassium permanganate, $KMnO_4$, (1:100) and sodium meta bisulfite, $Na_2S_2O_5$, are not at hand, they use the crystals and a little tap water receiving the same results. However, sodium thiosulfate ("hypo") is cheaper, less irritating than sodium meta bisulfite. "Hypo" is the active ingredient in iodine stain removers.—Ed.

ARTERIOSCLEROSIS AND DIABETES IN YOUTHS

To the Editor:—The editorial on "Diabetes and Arteriosclerosis in Youth" (The Journal, Dec. 20, 1947, p. 1074) and the article on "The Relationship of Chronic Alcoholism to Arteriosclerosis" by S. L. Wilens, M.D. (The Journal, Dec. 27, 1947, p. 1136) bring the following to mind: In 1934, A. Feller and I reported the results of extensive studies at the International Society of Geographical Pathology in Utrecht, Belgium. The study was based on systematic vascular investigation in 1,238 postmortem examinations made at the University Hospital, University of Vienna, Austria.

It was found that diabetic persons in the higher age groups showed a considerable increase in arteriosclerosis. However, such a difference was not statistically significant in patients below 50 years of age. No difference could be found in this study between alcoholic addicts and controls, considering equal age groups, essentially confirming the findings by Dr. Wilens on a different type of population.

I might mention that in our study there was no doubt that heavy smokers aged above 50 showed a considerable increase of arteriosclerosis, both in the coronary and femoral vessels and in the aorta. Since this study was made under different circumstances, it might be of general interest.

Arthur J. Lesser, M.D., Los Angeles.

URETHANE IN LEUKEMIA

To the Editor:—According to J. J. Webster (The Journal, Dec. 6, 1947, p. 901) available reports on the subject of urethane in leukemia "are chiefly in the British and German journals, and represent an optimistic view as to the future of urethane therapy." As far as the original paper was concerned (Paterson, E.; ApThomas, I.; Haddow, A., and Watkinson, J. M.: *Lancet* **1**:677, 1946), it was certainly not our intention to create any impression of optimism, and we do not consider that such could in fact have been conveyed to the majority of readers. While the palliative effects of urethane were recognized as remarkably similar to those obtained by standard methods of high voltage roentgen therapy, it was on the contrary made clear that no indication had been found "that permanent benefit may result from the use of urethane in either myeloid or lymphatic leukaemia." This goes considerably further than Dr.

Webster, who believes that "urethane has been used for so short a time that the cure, of course, cannot be judged." On the contrary, we have on no occasion encountered any result approaching cure, and should consider the possibility as extremely unlikely.

A later paper by Paterson and associates (in Approaches to Tumor Chemotherapy, American Association for the Advancement of Science, 1947, p. 401) adduces evidence to show that excessive dosage of urethane may bring about serious damage to both the white and red cell series, and ends as follows:

"It must be emphasized that the . . . results provide no indication of any kind that permanent benefit may result from the use of urethane in either myeloid or lymphatic leukaemia: the action of the drug is essentially reversible, relapses take place, and immature cells may reappear in the blood. At the same time, however, it can be said that the palliative effect is in many cases very substantial. It seems probable that the greatest value of the observation lies in its very considerable scientific interest, and in the fresh opportunities which it presents us for further attack."

This seems a fair statement of the position at the moment.

Alexander Haddow, M.D.,
Fulham Road, London S.W. 3.

Edith Paterson, M.B., F.R.C.P.,
Manchester 20, England.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARD OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in The Journal Feb. 21, page 575.

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I & II.* Various centers, June 21-23. Final date for filing application is May 22. *Part II.* Various centers, April 26-27. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Oral.* New York, April 12-15. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York 22.

American Board of Internal Medicine: *Written.* Oct. 18. Final date for filing application is June 1. Asst. Sec-Treas., Dr. W. A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Obstetrics and Gynecology: *Oral. All Groups. Part II.* Washington, D. C., May 16-22. Final date for assignment is April 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

American Board of Ophthalmology: *Oral.* Baltimore, May 20. Chicago, Oct. 6. *Written.* Various centers, Jan. 1949. Final date for filing application is July 1, 1948. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopaedic Surgery: *Part II.* Chicago, January 1949. Final date for filing application is August 15. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

American Board of Otolaryngology: *Oral.* Chicago, June 15-19. Sec., D. M. Lierle, University Hospital, Iowa City, Iowa.

American Board of Pathology: Philadelphia, March 8-10. Final date for filing application is March 1. Sec., Dr. Robert A. Moore, 507 Euclid Ave., St. Louis, Mo.

American Board of Pediatrics: *Oral.* Cleveland, April 23-25. Chicago, June 25-27. Seattle, Sept. 10. Atlantic City, Nov. 17-19. *Written.* March 12, July 30. Sec., Miss Lea Leonard, 718 Royal Union Bldg., Des Moines, Ia.

American Board of Plastic Surgery: Examinations are given in April and November of each year in the home town of applicants. Sec., Dr. Robert H. Ivy, 1930 Chestnut St., Philadelphia.

American Board of Radiology: *Oral.* Chicago, June 1948. Final date for filing application is March 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written. Part I.* October. Final date for filing application is July 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Judicial Notice of Need for Roentgenogram in Fracture Case.—The plaintiff sued for damages for injuries received as a result of a fall and as the result of the alleged malpractice of the physician in treating her therefor. From a judgment of nonsuit in favor of the physician, the plaintiff appealed to the district court of appeal, second district, division 2, California.

The plaintiff, a woman 51 years of age, slipped and fell, landing heavily on her right hip. She called the defendant physician, was advised that he was out of the city and was taken instead to the Hollywood Receiving Hospital, and then to her hotel. The next morning she again called the defendant physician. He replied that he had received a report from the Receiving Hospital that she was just bruised and that it was not necessary for him to visit her. He prescribed "anacin," rest and hot baths and told her to call him the following morning. Two days later she again telephoned the defendant physician, told him that she was still in great pain and asked him if he did not think he should come over to see her. He replied in the negative, stating that a bruise was often more painful than break. About a week after the accident, while leaning against a dressing table, the plaintiff's right ankle turned over and she heard her hip bone crack. The house physician in her hotel caused her to be removed to the Cedars of Lebanon Hospital, where roentgenograms were taken, and she was later transferred to the California Hospital, where the defendant physician finally called in person to see her. She told him that the members of the staff at Cedars of Lebanon Hospital thought that her hip was broken, but the defendant physician still adhered to his original diagnosis. Two days later, however, he told her that he had examined the roentgenogram taken at Cedars of Lebanon Hospital and that her hip was broken. Additional roentgenograms were then taken, her leg was placed in a cast and she was hospitalized for twelve weeks. Although the plaintiff was still suffering pain in her hip nine months after the accident, the defendant physician told her that she was not suffering from any necrosis and that the pain was caused by arthritis or neuritis.

It was the defendant's contention that these facts were not sufficient to make out a prima facie case in favor of the plaintiff, since there was no expert medical testimony indicating that the defendant had failed to use the required degree of skill and learning.

The appellate court said that the law requires a physician to have and exercise that degree of skill and learning ordinarily possessed and exercised by physicians of good standing practicing in the same locality. Furthermore, whether or not the physician has done so in a particular case is a question for experts and can be established only by their testimony. To this general rule, however, the court continued, there is a well recognized exception, to wit, where the question of the propriety of a treatment is a matter of common knowledge to laymen, expert testimony is unnecessary in order to establish liability in a malpractice case. The use of roentgen rays as an aid to diagnosis in cases of fracture or other indicated cases, said the court, is a matter of common knowledge of which the court, in the absence of expert testimony, may take judicial notice. When the plaintiff fell, said the appellate court, a possible fracture was indicated, and under the foregoing rules it was a matter of common knowledge, of which the trial court should have taken judicial notice, that the ordinary physician in good standing in this community in the exercise of ordinary care and diligence would have had roentgenologic pictures taken of the plaintiff's body. In failing to do so the defendant did not exercise the degree of learning and skill ordinarily possessed by physicians of good standing practicing in this community. No expert testimony was needed. Accordingly the judgment of nonsuit in favor of the defendant physician was reversed.—*Agnew v. City of Los Angeles, 186 P. (2d) 450 (Calif., 1947).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

Alabama State Medical Assn. Journal, Montgomery

17:153-176 (Nov.) 1947

Part That the Doctors of State Medical Association Have Played in Development of Public Health in Alabama. W. K. Sharp Jr.—p. 153.
Diagnosis and Treatment of Addison's Disease. E. H. Planck.—p. 157.
Hidrosadenitis Suppurativa: Report of 2 Chronic Cases Treated by Surgical Excision. R. G. Goodall.—p. 159.
Acute Postpartal Heart Failure: Report of 4 Cases with an Inquiry Into Pathogenesis. A. M. Freeman.—p. 163.

17:177-212 (Dec.) 1947

Colostomy. J. G. Vance.—p. 177.
Cancer of Mouth. J. D. Peake.—p. 183.
Lung Abscess. C. J. Donald Jr.—p. 185.

American Journal of Hygiene, Baltimore

46:297-411 (Nov.) 1947

Comparison of Calculated and Determined Calorie and Vitamin Contents of Mixed Diets. Margaret M. Kaser, Ruth C. Steinkamp, W. D. Robinson and others.—p. 297.
Interepidemic Studies on Arthropod-Borne Virus Encephalitides and Poliomyelitis in Kern County, California, and Yakima Valley, Washington, 1944. Rate of Asymptomatic Malarial Infection in White and Negro Service Troops Taking Suppressive Atabrine. W. Trager.—p. 336.
Difference in Dissemination of Virus of Japanese B Encephalitis Among Domestic Animals and Human Beings in Japan. A. B. Sabin, D. R. Ginder and M. Matumoto.—p. 341.
Japanese B Encephalitis in American Soldiers in Korea. A. B. Sabin, R. W. Schlesinger, D. R. Ginder and M. Matumoto.—p. 356.
Relation of Oil Treatment of Floors and Bedding to Control of Respiratory Diseases Among Naval Personnel. I. L. Shechmeister and F. S. Greenspan.—p. 376.

Anesthesiology, New York

8:567-679 (Nov.) 1947

Planning the Operating Room. E. T. Wheeler and W. H. Cassels.—p. 567.
Further Studies on Production of Cyclopropane-Epinephrine Tachycardia. J. W. Stutzman, Q. Murphy, C. R. Allen and W. J. Meek.—p. 579.
*Nupercaine in Dilutions Greater Than 1:1,500 for Spinal Anesthesia. A. J. Fisher and R. J. Whitacre.—p. 584.
Median Lethal Dose (LD_{50}) of Pentothal Sodium for Both Young and Old Guinea Pigs and Rats. E. B. Carmichael.—p. 589.
Hydrogen Ion Concentration of Spinal Fluid and Its Relation to Spinal Anesthetic Failures. E. N. Cohen and R. T. Knight.—p. 594.
Variations in Signs of Acute Oxygen-Want During Anesthesia. C. R. Allen, R. S. Echols, E. A. Hoeflich and others.—p. 601.
Ethyl-Normal-Propyl Ether: Satisfactory General Anesthetic Agent for Intranasal Surgery. H. R. Griffith and E. J. MacLeod.—p. 615.
Application of New Piperidine Derivative to Spinal Anesthesia: Preliminary Report. G. H. Finer and E. A. Rovenstine.—p. 619.
Anaphylaxis and Anesthesia: Preliminary Report. H. Carron.—p. 625.
Clinical Observations on N-Propyl Methyl Ether. S. Rochberg.—p. 637.

Dilutions of "Nupercaine" in Spinal Anesthesia.—In an effort to evaluate the clinical effects of dibucaine hydrochloride ("nupercaine hydrochloride") in dilutions greater than 1:1,500, Fisher and Whitacre used concentrations varying from 1:2,000 to 1:10,000 in 1,124 cases, of which all but 61 involved intra-abdominal operations. It was desired to determine the weakest effective dilution necessary to produce anesthesia and to observe whether high dilutions decreased the toxicity of dibucaine. The use of the higher dilutions of the drug for spinal anesthesia indicated that the concentration of the drug did not appreciably alter the degree or duration of sensory anesthesia or motor block. Likewise, the incidence and severity of circulatory reactions were not decreased by the use of dilute solutions of dibucaine. It appears that the toxicity of dibucaine in spinal anesthesia is dependent primarily on the amount rather than the dilution of the drug. There is little or no advantage in using concentrations of dibucaine less than those ordinarily recommended for spinal anesthesia.

Annals of Surgery, Philadelphia

126:633-840 (Nov.) 1947

*Subtotal Gastrectomy for Gastric Ulcer: Study of End Results. H. K. Ransom.—p. 633.
Effect of Vagotomy on Human Gastric Function: Preliminary Report. A. M. Schoen and R. A. Griswold.—p. 655.
Vagus Resection for Ulcer; An Interim Evaluation: II. Clinical Results. F. D. Moore.—p. 664.
Study of Results, both Favorable and Unfavorable, of Section of Vagus Nerves in Treatment of Peptic Ulcer. W. Walters, H. A. Neibling, W. F. Bradley and others.—p. 679.
Section of Vagus Nerves to Stomach in Treatment of Peptic Ulcer: Complications and End Results After Four Years. L. R. Dragstedt, P. V. Harper Jr., E. B. Tovee and E. R. Woodward.—p. 687.
Abdominal Visceral Sensation in Man. B. S. Ray and C. L. Neill.—p. 709.
*Role of Pinealomas in Causation of Diabetes Insipidus. G. Horrax.—p. 725.
*Treatment of Focal Epilepsy by Cortical Excision. W. Penfield and H. Steelman.—p. 740.
Urgent Surgery in the Aged. G. W. Cutler Jr.—p. 763.
Experiences in Surgical Treatment of Multiple Visceral Neoplasms. A. Brunschwig and P. W. Schafer.—p. 780.
Resection and Primary Anastomosis in Treatment of Gangrenous or *Non-Reducible Intussusceptions in Children: Safe, Simple, One-Layer* Silk Anastomosis. C. Dennis.—p. 788.
Mediastinal Aberrant Goiter. J. D. Rives.—p. 797.
Inflammatory Obliteration of Common and Hepatic Ducts Following Cholecystectomy. H. F. Graham.—p. 811.
Appendiceal Stump. G. H. Yeager.—p. 814.
Talcum Powder Granuloma: Frequent and Serious Postoperative Complication. B. Eiseman, M. G. Seelig and N. A. Womack.—p. 820.
Suspension Operation for Prolapse of Rectum. T. G. Orr.—p. 833.

Subtotal Gastrectomy for Gastric Ulcer.—Difficulties in differential diagnosis prompted some authors to take the position that gastric ulcer, unlike duodenal ulcer, is primarily a surgical problem. Other writers question the propriety of such a radical attitude, especially with regard to gastric resection. Ransom analyzes his experience of a twenty year period, during which 1,356 patients with gastric ulcer were treated. Of this number, 246 patients required surgical intervention. Twenty patients had acute perforation. Elective surgical procedures were performed in 226 cases. The more conservative operations such as gastroenterostomy have declined. Partial, subtotal or total gastrectomies were performed in 188 cases. Gastric resection has limitations. For patients who are exceedingly obese, who are poor risks or who have high or inaccessible lesions, a less ideal but safer procedure should be selected. With the advent of vagus interruption a new method is available for this group of patients. Subdiaphragmatic vagotomy may be worth while at the time of subtotal gastrectomy in an attempt to prevent jejunal ulcer. The conventional subtotal resection whereby a large portion of the lesser curvature as well as the antrum and pylorus were removed, has given best results in this series. Little difference has been noted in the late results between cases in which a Polya or a Hoffmeister reconstruction was performed and the clinical results of antecolic and retrocolic anastomoses. The Finsterer exclusion operation should be abandoned. The record of results in the 3 total gastrectomies is not good. Although there was 1 excellent result, there was 1 operative death and 1 poor result. The procedure seems much too radical for the treatment of a benign ulcer. The fact that microscopic study revealed cancer in 10 per cent of the lesions, which was not recognized at the time of laparotomy, would indicate that indirect operation for gastric ulcer should be accepted with caution. There is a place for medical treatment in the management of certain gastric ulcers, but its dangers and limitations should be realized.

Pinealomas as Cause of Diabetes Insipidus.—Horrax says that whereas the occurrence of diabetes insipidus in patients with pituitary tumors or other lesions in the suprasellar or chiasmal region was easily understood, the occasional report of polydipsia and polyuria in patients with tumors arising from the pineal body, which is so far removed from the supposed source of diabetes insipidus, was incapable of
Stringer in 1934 studied a patient coming to
in addition to a small pinealoma replacing the

solitary implant confined to the tuber cinereum of the hypothalamus. Diagnosis of pinealoma has been made in 17 instances in his brain tumor series during the past fourteen years. Of these 17 patients, 5 had diabetes insipidus. In 2 of the patients the pineal tumor has been histologically verified and in the 3 other patients the tumor has been demonstrated by neurologic and ventriculographic evidence. In 1 patient (case 1) the tumor cells were shown microscopically to have invaded the hypothalamus and posterior lobe of the pituitary body, thus involving the tract of nerve fibers whose interruption has been shown to be responsible for diabetes insipidus. In case 2 the growth was an ectopic pinealoma in the suprasellar region, obviously compressing the area in question. When the tumor was removed the polyuria was greatly lessened. In the 3 patients whose tumors have been depicted by ventriculography a similar invasion of this tract, as in case 1, seems probable. These 3 patients have received roentgen treatment. In 2 patients the rays were directed not only at the pineal region but also to the suprasellar area, which included the hypothalamic region as well. Their general condition has remained excellent for six and one-half to fourteen years following roentgen therapy. The diabetes insipidus has been considerably relieved in 1 and probably in 2 of these patients. It is possible that the water imbalance may persist, because partial interruption of the nerve tract from hypothalamus to pituitary is permanent even though the tumor cells originally causing this interruption have been destroyed by the roentgen rays.

Cortical Excision in Focal Epilepsy.—Penfield and Steelman show that excision of partially damaged convolutions adjacent to meningocerebral scars or in areas of cerebral atrophy has proved to be an effective treatment of epilepsy. Seventy-six atients submitted to operation. One patient died as a result f the operation. Of the 59 patients who had excision, 15 had no further attacks and 18 had one or two seizures but considered themselves cured or practically so. Of the 16 craniotomies without excision, none were successful. It therefore seems that removal of adhesions, decompression or closure of cranial defects have no effect on the attacks unless the proper excision is carried out. The best results from excision were obtained in the birth injury group. Infectious processes came next and head injury third. Removals in the frontal pole were most successful, and the central (or sensorimotor) cortex came next. When attacks recur early after operation and if the pattern is the same as preoperatively, an immediate second operation should be considered. The persistence of a spike electrographic focus after operation or the appearance of marked delta electrographic activity near the site of removal should cause the surgeon to consider reoperation. In preoperative studies, the simpler the electrographic record is and the better it is localized, the better the prognosis of a successful excision. A well localized, simple electroencephalogram, not supported by pneumographic or other evidence, has sometimes led to a useless exploration. The surest guide to localization of an epileptogenic zone is the seizure pattern. The greatest supplementary help is electrographic study. Radical excision seems to offer a reasonable possibility of cure to those who have cortical foci of discharge and whose attacks are not controlled by medicaments.

Annals of Western Medicine & Surgery, Los Angeles

1:411-452 (Dec.) 1947

Problem of Mental Hospital Construction in Los Angeles County. W. R. Rosanoff and G. N. Thompson.—p. 411.
Rheumatoid Arthritis: Advances in Therapy. B. L. Wyatt.—p. 416.
*Prostigmine Therapy in Paralysis. E. L. Coodley.—p. 425.
*Treatment of Subacute Bacterial Endocarditis with Penicillin. L. Hyde and B. Hyde.—p. 429.

"Prostigmine" in Paralysis.—Coodley administered neostigmine methylsulfate in a strength of 1:2,000 to 48 patients with paralysis of varying duration. The daily dose was 1 ampule (0.5 mg.) administered intramuscularly with atropine sulfate, grains 1/150 (0.4 mg.). The drug is theoretically indicated because of its effect of neutralizing cholinesterase, thus preventing the breakdown of acetylcholine at the myoneural junction and facilitating the passage of nerve impulses at this point. There is evidence to suggest that neostigmine also acts centrally. The toxic effects of therapy were negligible. There was no correlation between the type of lesion and the therapeutic results. There was a positive correlation between the duration of lesions and responsiveness to therapy. Subacute lesions, those between three and six months, responded to neostigmine therapy; chronic lesions of over six months' duration showed little response. Neostigmine is not a panacea, and partial and complete failures must be expected.

Penicillin in Subacute Bacterial Endocarditis.—The Hydes report 4 patients with subacute bacterial endocarditis caused by Streptococcus viridans who responded to penicillin therapy and are well and asymptomatic. In each case the organism isolated from the blood was found to be sensitive to penicillin in vitro. The daily dose of penicillin received by these patients varied because of the opinions of the individual physicians. The authors believe that at least 500,000 units of penicillin daily for four to six weeks would appear to be effective. A patient not responding should be given a larger daily dose of penicillin over a longer period of time. The first patient received 1,000,000 units every three hours and a total dose of 106,000,000 units.

Archives of Dermatology and Syphilology, Chicago

56:559-714 (Nov.) 1947

Howard Fox—A Leader in Medicine and A Great Dermatologist. P. E. Bechet.—p. 560.
Coal Tar in Dermatology: An Improvement in Its Physical Properties Without Change in Its Therapeutic Action. F. C. Combes.—p. 583.
Acne Rosacea: Vitamin B Complex Deficiency. L. Tulipan.—p. 589.
Occupational Pigmentary Changes in Skin. L. Schwartz.—p. 592.
Propionate-Caprylate Mixtures in Treatment of Dermatomycoses with Review of Fatty Acid Therapy in General. S. M. Peck and W. R. Russ.—p. 601.
*Sulfapyridine in Treatment of Dermatitis Herpetiformis. M. J. Costello.—p. 614.
Psoriasis of Hands: Nonpustular Type. M. R. Caro and F. E. Senear.—p. 629.
*Relation Between Thiamine and Arsenical Toxicity: Preliminary Report. G. B. Sexton and C. W. Gowdey.—p. 634.
Myoblastoma: Report of Case of Myoblastoma of Lip Followed by Multiple Tumors of Skin. D. Bloom and A. M. Ginzler.—p. 648.
Sarcoid of Boeck in Negro. S. Irgang.—p. 659.
Cosmetic Dermatology: Alkalinity of Face Powder Mixtures. H. Sharlit.—p. 666.
Pseudoepitheliomatous Hyperplasia Due to Granuloma Inguinale. O. S. Philpott.—p. 669.
Dermatitis Venenata Due to Streptomycin. O. Canizares and H. Shatin.—p. 676.
Contact Eczematous Dermatitis and Patch Tests: Histologic Study. C. S. Miller.—p. 678.
*Suppression of Treponemicidal Action of Arsenic with 2,3-Dimercaptopropanol (BAL): Report of Clinical Observations in 5 Cases. G. A. De Oreo.—p. 695.
Observations on Spinal Fluid in Lymphogranuloma Venereum. W. Leifer.—p. 699.

Sulfapyridine in Dermatitis Herpetiformis.—A questionnaire sent to the members of the American Dermatological Association to determine the present status of sulfapyridine in the treatment of dermatitis herpetiformis revealed that the sulfonamide drugs are of value in the treatment of that disease. Sulfapyridine is the most effective sulfonamide drug in the treatment of this dermatosis. The average initial daily dose of sulfapyridine for this disease is 1 Gm. three times a day, and the average maintenance dose is 0.5 Gm. three times a day. Twelve per cent of the physicians who had experience with the sulfonamide drugs in the treatment of dermatitis herpetiformis had patients who were cured with this form of treatment. All those who had experience with the sulfonamide drugs in this disease stated that, on the average, 80 per cent of the patients had improved to the extent that they were free of symptoms. The physical and mental suffering caused by this chronic pruritic vesiculobullous disease warrants the risk of administration of sulfapyridine. Patients should be apprised of the risk involved. Sulfapyridine has been administered in maintenance doses from three months to seven years with apparent safety. Opinion is equally divided regarding the advantages of continued and interrupted treatment. Mild toxic reactions are frequent. Severe toxic reactions are rare if blood cell counts and urinalyses are made at frequent intervals. Copious intake of fluid and alkali therapy reduce the incidence of these reactions. Penicillin is less effective than the sulfonamide drugs in dermatitis herpetiformis. The antihistaminic drugs are probably an adjuvant to the sulfonamide drugs.

Thiamine and Arsenical Toxicity.—Sexton and Gowdey say that their interest in the relation between thiamine and arsenical toxicity was stimulated in 1943 by the rapid remarkable recovery of a patient in Victoria Hospital, in whom peripheral neuritis and suspected arsenical encephalopathy had developed during the course of the five day drip treatment and after parenteral administration of massive doses of thiamine hydrochloride. The literature revealed that there was an amazing similarity between arsenical encephalopathy and acute vitamin B_1 deficiency. The authors report experiments on animals and observations on patients in whom extensive five day drip arsenical treatment was given. They found that oxophenarsine hydrochloride causes a significant derangement in carbohydrate metabolism, as evidenced by increased pyruvic acid and sugar in the blood. The high level of pyruvic acid suggests that catabolism is stopped at the level of pyruvic acid. This is directly related to the functioning level of thiamine, since a deficiency of the coenzyme containing thiamine produces a high level of pyruvic acid. A sudden rise in the level of pyruvic acid, coinciding with greatly increased muscular sensitivity and rising temperature, is experimental evidence of a reaction of severe toxicity. In a reaction seriously involving the central nervous system vitamin B_1 and 2,3-dimercaptopropanol (BAL), if they are to be used therapeutically, must be given early, before the reaction has gone beyond the irreversible pathologic lesion. Five cases of acute arsenical intoxication are described. In all 5 the level of pyruvic acid was high throughout the course of the drip and the curves portraying this high level of pyruvic acid were all of the same general shape. It would seem that 2,3-dimercaptopropanol and vitamin B_1 in adequate dosage should be complementary in the treatment of arsenical encephalopathy. Administration of vitamin B_1 insures the functioning at peak levels of the cellular enzyme systems not affected by the arsenical. When the usefulness of vitamin B_1 has been exceeded, then BAL may be used to inactivate the arsenical, though this means the loss of its spirocheticidal effect. A high level of pyruvic acid accompanied with clinical signs of subacute B_1 avitaminosis should warrant treatment other than intensive arsenotherapy.

Treponemicidal Action of Arsenic and BAL.—De Orco treated 5 patients who had acute early syphilis with 2,3-dimercaptopropanol, or BAL, and oxophenarsine hydrochloride in an attempt to determine whether BAL effected a depressing action on the treponemicidal factor of arsenic. In 3 cases the destruction of Treponema pallidum was delayed (long after the time normally required with standard treatment) by the use of BAL. In cases 2 and 5 organisms were still present after three and one-half days of injections of combined arsenic and 2,3-dimercaptopropanol. In case 1 T. pallidum persisted for eight days. In one case the T. pallidum quickly disappeared from the lesion following the withholding of one injection of BAL. In another case, in which BAL and oxophenarsine hydrochloride were given simultaneously, there appeared to be no diminution of the treponemicidal action of oxophenarsine hydrochloride; however, based on the other observations it is thought that this was probably due to the different routes of administration of the two drugs, inasmuch as the arsenical was given intravenously, thus allowing for much faster dissemination. Adequate doses of 2,3-dimercaptopropanol have a suppressive effect on the treponemicidal action of arsenic.

Archives of Ophthalmology, Chicago

38:577-734 (Nov.) 1947

Postoperative Complications of Cataract Extraction. W. F. Hughes Jr. and W. C. Owens.—p. 577.
Macular Hole with Extensive Peripheral Detachment of Retina. A. Rados.—p. 596.
Tenotomy of Superior Oblique Muscle for Hypertropia: Preliminary Report. R. N. Merke.—p. 605.
Iontophoresis with Contact Lens Type and Eyecup Electrodes: Some Points of Theory and Technic of Ion Transfer. E. Selinger.—p. 645.
Neurofibromatosis Iridis (Recklinghausen's Disease). K. Unger.—p. 654.
Use of Air Injections into Tenon's Capsule for Localization of Orbital Foreign Bodies. B. Friedman.—p. 660.
Use of Absorbable Corneoscleral Sutures in Cataract Surgery. Report of 76 Cases. L. J. Alger.—p. 665.
Solutions Used with Contact Lenses. T. E. Obrig.—p. 668.
Spontaneous Luxation of Eyeball. G. L. Miller, A. Schlossman and W. H. Boyd.—p. 677.

Archives of Otolaryngology, Chicago

46:575-734 (Nov.) 1947

•Tonsillectomy and Poliomyelitis. D. S. Cunning.—p. 575.
Healing of Experimental Labyrinthine Fistulas: Further Observations. J. R. Lindsay.—p. 584.
Dislocation of Septal Cartilage. S. Cohen.—p. 601.
•Congenital Atresia of Esophagus with Tracheoesophageal Fistula: Report of 6 Cases. J. A. Perrone, W. H. Fleming and T. R. Whitaker.—p. 608.
Contact Ulcer of Larynx: II. Role of Vocal Reeducation. Georgiana Peacher and P. Holinger.—p. 617.
Effect of Typical Nasal Plastic Correction on Facial Expression. B. L. Griesman.—p. 624.
Intranasal (Sphenopharyngeal) Encephalocele: Report of Case with Intracranial Repair and Review of Subject. F. M. Anderson.—p. 644.
Osteoma of Frontal Sinuses. J. N. Novick.—p. 655.
Different Treatment of Chronic Purulent Otitis Media: Deep Lavage, Aeration and Application of Gold Foil Membrane Bearing Ointment of Scarlet Red. M. Urger.—p. 670.
Allergy. E. L. MacQuiddy and R. E. King.—p. 686.

Tonsillectomy and Poliomyelitis.—At the May 1946 meeting of the American Laryngological, Rhinological and Otological Society it was suggested that a nationwide survey be carried out with regard to the relationship of tonsillectomy and poliomyelitis. Each section chairman of the society was to appoint one or more members from each state to gather pertinent information for a statistical report. Some members made no report; the reports of others were so sketchy and incomplete as to be useless. Of 6,000 questionnaires received, almost 4,000 had to be discarded. Although this study cannot settle conclusively the problem whether surgeons should avoid removing tonsils during epidemics of poliomyelitis, certain valuable evidence has resulted. One table shows that 4.7 per cent of the cases of bulbar involvement were preceded by tonsillectomies, while only 1.9 per cent of the cases of spinal involvement followed recent tonsillectomies. Not much importance can be placed on the interpretation because of the inadequacy of the original data and the lack of comparative values. Tonsillectomies are performed usually in the summer months, not entirely as a matter of convenience to the surgeons or the children. The summer months, with their low incidence of respiratory infections, offer the ideal time for such a procedure. If the present practice of summer tonsillectomies is to be changed because of fear of poliomyelitis, then the dangers of respiratory infections will substantially increase. To incur that increased risk, laryngologists must have proper justification. Cunning also points out that the majority of tonsillectomies are not elective. Most of them are necessary surgical procedures, performed in the interest of preventive medicine. Infected tonsils are possible etiologic foci for nephritis, mastoiditis, infection of the middle ear, rheumatic fever and many other debilitating diseases. For the full protection of his patient, the surgeon, before postponing an indicated tonsillectomy, must weigh the dangers and the chances of the contraction of any of these diseases as well as the dangers and the chances of poliomyelitis. The author urges that another study be made to answer the question whether children on whom tonsillectomy is performed during the summer months are more likely to contract poliomyelitis than are nontonsillectomized children.

Congenital Atresia of Esophagus.—Perrone and his associates point out that the prognosis of esophageal atretic defects is fatal unless some surgical intervention is accomplished which will prevent pneumonia and starvation, the two primary causes of death. The authors present the histories of 6 patients with congenital atresia of the esophagus who have been observed at the Mercy Hospital in Pittsburgh between 1939 and 1945. Excessive mucus in the mouth and throat was a symptom in all these infants. An example of the dangers of the use of barium sulfate for diagnostic purposes is seen in case 1, in which death occurred soon after barium sulfate had been permitted to enter the bronchi. Iodized oil should be used in preference to barium sulfate, since complications resulting when oil is instilled into the lungs are much less severe than those resulting when barium sulfate enters these organs. The first 3 cases of this series show the necessity of an early closing of a fistula connecting the lower esophageal segment with the trachea. In these 3 cases the gastric contents were constantly being regurgitated upward into the trachea, causing fatal pneumonia. Too frequently the patient is treated for the pulmonary complications for an extended period, and the primary cause of the symptoms is overlooked, as in cases 3 and 6 of this series. Frequently, in view of the regurgitation of feedings, the patient is suspected of having pyloric stenosis, but this confusion should not exist too often. All 6 patients died.

Bull. of U. S. Army Med. Dept., Washington, D. C.

7:911-988 (Nov.) 1947

Laboratory Observations on Antibiotics. M. Levine and A. R. Thomas Jr.—p. 922.

Psychoneurosis in the Armed Forces. E. D. Fisher.—p. 939.

Early Definitive Treatment of Fractures of Femur. J. J. Cawley Jr., C. Abell and H. Freede.—p. 948.

Bovine Brucellosis in Germany. F. A. Todd.—p. 953.

Preparation of Japanese Encephalitis Vaccine. J. E. Smadel, R. Randall and J. Warren.—p. 963.

Trichinosis in Prisoners of War. W. A. Davis and R. R. Cleland. —p. 973.

7:989-1071 (Dec.) 1947

Intravenous Administration of Atabrine in Falciparum Malaria. T. E. Machella, L. J. Kimmelman and R. A. Lewis.—p. 1009.

Surgery of Thyroid. L. W. Sloan.—p. 1022.

Spot Plate Test for Ascorbic Acid. H. A. Risley, J. F. Thompson, J. S. Roth and others.—p. 1030.

Effectiveness of Forward Neuropsychiatric Treatment. A. J. Glass. —p. 1034.

Pulp Canal Therapy and Apicoectomy. C. A. Emery.—p. 1042.

Dermatologic Problems in an Army Hospital. T. H. Finkle.—p. 1047.

Journal of Bacteriology, Baltimore

54:549-669 (Nov.) 1947. Partial Index

Studies on Polymyxin: Isolation and Identification of Bacillus Polymyxa and Differentiation of Polymyxin from Certain Known Antibiotics. P. G. Stansly and M. E. Schlosser.—p. 549.

Plate Methods for Testing Antibiotic Activity of Actinomycetes Against Virulent Human Type Tubercle Bacilli Elizabeth H. Williston, Pari Zia-Walrath and G. P. Youmans.—p. 563.

Morphologic Variant of Escherichia Coli and Its Resistance to Streptomycin. Esther Stubblefield.—p. 569.

Isolation of Type B Botulinum Toxin. C. Lamanna and H. N. Glassman.—p. 575.

Studies on Polymyxin: An Agar Diffusion Method of Assay. P. G. Stansly and M. E. Schlosser.—p. 585.

Further Studies on Immunization of Rabbits to Toxigenic Corynebacterium Diphtheriae by Injections of Nontoxigenic Diphtheria Bacilli. M. Frobisher Jr. and Elaine L. Updyke.—p. 609.

*Study of Bacterial Synergism with Reference to Etiology of Malignant Diphtheria. Elaine L. Updyke and M. Frobisher Jr.—p. 619.

Effect of Sodium Acenaphthene(5)Sulfonate on Strain of Eberthella Typhosa. T. H. Grainger Jr. and Dorothy L. Wilmer.—p. 633.

Initial Body and Plaque Form in Chlamydozoaceae. G. Rake.—p. 637.

Relative Errors of Bacteriologic Plate Counting Methods. T. L. Snyder. —p. 641.

Cultural Studies on Yeastlike Phase of Histoplasma Capsulatum Darling. S. B. Salvin.—p. 655.

Etiology of Malignant Diphtheria.—Updyke and Frobisher investigated the etiology of malignant diphtheria with reference to the possibility of a synergistic action between Corynebacterium diphtheriae and hemolytic streptococci or other organisms. Two experimental procedures were employed: (1) intraperitoneal inoculation into mice of combinations of living cultures of homologous pairs (both organisms isolated from the same case of malignant diphtheria) of C. diphtheriae and beta streptococci and (2) intracutaneous inoculation into rabbits of diphtheria bacilli or toxin in combination with living cultures of various organisms. In the experiments with mice, deaths occurred in greater numbers and in a shorter time among those animals receiving combinations of sublethal doses of diphtheria bacilli and streptococci than among those receiving the same dose of either organism alone. This was at first interpreted as indicative of a synergistic action between the two organisms. However, it was found that the volume or quality of nutrient material or inert particles, or both, in the inoculum has a decided effect on the lethality of streptococci for mice. The experiments with rabbits in which nonspecific factors in the inoculums were controlled revealed no reactions that could be attributed to synergism between diphtheria toxin and one or more strains of thirty-two different bacteria. The problem of the etiology of malignant diphtheria is as yet unsolved.

Journal of the Mount Sinai Hospital, New York

14:849-890 (Nov.-Dec.) 1947

Treatment of Epilepsy. H. H. Merritt.—p. 849.

Physiologic Therapy in Diseases of Respiratory System. A. L. Barach.—p. 857.

Tumors of Twelfth Nerve: Report of 2 Cases. B. J. Bernstein and A. I. Goldfarb.—p. 864.

Spread of Infection from Face and Jaws: Anatomic Considerations. H. H. Shapiro.—p. 874.

Phlegmon of Floor of Mouth: (Ludwig's Angina). G. P. Seley. —p. 880.

Spread of Infection from Jaws to Submaxillary Region: Clinical Considerations. L. Stern.—p. 884.

Journal of Nervous and Mental Disease, New York

106:415-512 (Oct.) 1947

Pathways of Tectum (Anterior Colliculus) of Midbrain in Cats. O. Marburg and F. J. Warner.—p. 415.

Objective Method of Recognizing Biophysical Artefacts in Electro-Encephalogram. J. W. Thiesen.—p. 447.

Electro-Encephalogram in Epileptic Patients Aged Five to 80 Years. L. J. Robinson and R. G. Osterheld.—p. 464.

Processes of Expectation and Anticipation: Their Genetic Development, Neural Basis and Role in Psychopathology. S. Arieti.—p. 471.

Psychiatric Realities: Analysis of Autistic Trends in Psychiatric Thinking. F. A. Freyhan.—p. 482.

Case of Neuronitis Simulating Muscular Dystrophy. P. R. Apffel. —p. 493.

Journal of Neurophysiology, Springfield, Ill.

10:383-446 (Nov.) 1947. Partial Index

Small Nerve Motor System to Skeletal Muscle. S. W. Kuffler and R. W. Gerard.—p. 383.

Further Observations on Spreading Depression of Activity in Cerebral Cortex. A. A. P. Leão.—p. 409.

Tectal and Bulbopontine Eyelid Reflexes and Mechanism of Sleeping Attitude of Acute Thalamic Pigeon. G. Moruzzi.—p. 415.

Mechanism of Nerve Conduction Block Produced by Anticholinesterases. J. E. P. Toman, J. W. Woodbury and L. A. Woodbury.—p. 429.

Journal of Pharmacology & Exper. Therap., Baltimore

91:195-305 (Nov.) 1947. Partial Index

Studies in Analgesia: Piperidine Derivatives with Morphine-Like Activity. R. H. K. Foster and Arlueen J. Carman.—p. 195.

Absorption and Renal Excretion of Tetraethylammonium Ion. Barbara R. Rennick, G. K. Moe, R. H. Lyons and others.—p. 210.

*Influence of Various Substances on Chronic Selenium Poisoning. Irene Rosenfeld and O. A. Beath.—p. 218.

Toxicity and Pharmacologic Action of Nitrogen Mustards and Certain Related Compounds. W. P. Anslow Jr., D. A. Karnovsky, B. V. Jager and H. W. Smith.—p. 224.

Antagonism of Curare Action by Neostigmine, Physostigmine, Ephedrine and Di-Isopropyl Fluorophosphate (DFP). H. F. Chase, J. L. Schmidt and B. K. Bhattacharya.—p. 236.

Estimation of 4'-Carboxyphenylmethane Sulfonanilide (Caronamide) in Biologic Fluids. B. B. Brodie, Betty Levy and Eleanore Bernstein. —p. 246.

Effect of Carbon Tetrachloride Liver Damage in Rabbit and Rat on Acetylcholine Esterase Activity. S. Ellis, Shirley Sanders and O. Bodansky.—p. 255.

4'-Carboxyphenylmethanesulfonanilide (Caronamide): Its Toxicologic Effects. K. H. Beyer, S. E. McKinney, Elizabeth K. Tillson and C. W. Green.—p. 263.

Effects of Caffeine and Theobromine Derivatives on Oxygen Consumption of Muscle. C. L. Gemmill.—p. 288.

Selenium Poisoning.—Rosenfeld and Beath say that inasmuch as selenium contaminates grains and vegetables consumed by human beings as well as livestock the factors which influence selenium poisoning merit consideration. After citing studies from the literature which indicate that dietary factors can reduce and the addition of other chemicals can enhance or decrease the toxicity of selenium, the authors describe studies on the influence of ascorbic acid, beet pectin and potassium iodide on chronic selenate and selenite poisoning. Various amounts of ascorbic acid given by mouth to rats receiving a constant amount of sodium selenite (0.15 mg. selenium) daily did not protect the organs from injury or prevent the development of ascites. The intraperitoneal injection of 28 mg. of potassium iodide daily increased the toxicity of selenate and selenite forms of the element. The daily administration of beet pectin prevented the development of ascites in all but 1 animal during the experiment (eighty days). In animals which were living at the termination of the experiment, however, ascites gradually developed two months after the administration of selenium and pectin was discontinued. Beet pectin did not give complete protection against hepatic damage, and ascites developed due to portal obstruction.

New England Journal of Medicine, Boston

237:719-754 (Nov. 13) 1947

Medical Group Practice in United States. II. Survey of Five Groups in New England and Middle Atlantic States. G. H. Hunt and M. Goldstein.—p. 719.
Splenic Cyst: Report of Case. H. Duby.—p. 731.
*Failure of Peritoneal Button Operation for Ascites. Report of 2 Cases. K. J. Welch.—p. 735.
Diagnostic Roentgenology: Congenital Lesions of Heart and Great Vessels: Nephrography. R. Schatzki.—p. 738
Bronchiogenic Cyst.—p. 743.
Post-Radiation Cicatrix of Cervix, with Stenosis of Cervical Canal. —p. 746.

237:755-794 (Nov. 20) 1947

Occupational Dermatoses (Ergodermatoses) Diagnosis, Disability and Treatment. J. G. Downing.—p. 755.
Hepatitis of Hyperthermia: Report of Fatal Case. J. H. Bragdon. —p. 765.
Syphilitic Primary Optic Atrophy: Review of 54 Cases S. Levin, L. D. Trevett and M. Greenblatt.—p. 769.
Inhibition of Cutaneous Pain Responses by Local Application of Cold: Simple Method of Reducing Pain of Hypodermic Injections. F. D. Ingraham, D. D. Matson and R. P. Woods.—p. 773
Practical Considerations of Venous Pressure H. H. Hussey and H. Jeghers.—p. 776.
Squamous-cell Carcinoma of Left Renal Pelvis p 782.
Adenocarcinoma of Body of Pancreas, with Extension into and Ulceration of Stomach.—p. 786.

Failure of Peritoneal Button Operation for Ascites.—Welch points out that some of the surgical procedures employed for the treatment of recurrent massive ascites are designed merely to rid the patient of an oppressive volume of fluid; others attempt to eliminate factors in the production of ascitic fluid, and still others attempt to improve the body economy by returning water, electrolytes and protein to the general circulation. To this last group belongs the peritoneal button operation, in which a flanged glass tube is inserted between the peritoneal cavity and a pocket made in the subcutaneous tissues of the anterior abdominal wall. This has the theoretic advantage of providing a constant slow clysis of the patient's own blood transudate and the practical advantage of being a relatively simple operation that can be performed under local anesthesia. The authors describe the histories of 2 patients who were treated with the peritoneal button and in whom the defects were negligible after two to four weeks. Postmortem examination revealed a subcutaneous cystic space having a dense fibrous wall and communicating with the peritoneal cavity in each case. It is suggested that because of the small area of surface exposed and the fibrous character of the wall, little absorption can take place from such a cavity. The peritoneal button operation did not provide an effective, sustained, slow clysis of ascitic fluid in these cases.

New York State Journal of Medicine, New York

47:2367-2494 (Nov. 15) 1947

Problems Encountered in Treatment of Cutaneous Cancer. H. L. Traenkle.—p. 2414.
Fifteen Years of Electrocardiographic Exercise Test in Coronary Stenosis. D. Scherf.—p. 2420.
Cutaneous Ulceration in Organic Central Nervous Disease: Report of Trophic Ulcers in Case of Postmeningitic Myelitis and in Case of Dermoid Cyst of Spinal Cord. D. Bloom.—p. 2425.
Preparation of Elderly Patients for Large-Scale Operations. A. O. Wilensky.—p. 2432.
Some Observations on Tumor of Acoustic Nerve. B. C. Meyer.—p. 2436.
Treatment of Early Syphilis with Penicillin at Bellevue Hospital. E. W. Thomas.—p. 2439.
Treatment of Late Acquired Syphilis Other Than Neurosyphilis. J. W. Jordon and F. A. Dolce.—p. 2443.
*Serologic Tests in Penicillin-Treated Syphilis. C. R. Rein.—p. 2450.
Value of Symptoms and Physical Signs in Differential Diagnosis of Jaundice. W. F. Lipp, A. R. Lenzner and A. H. Aaron.—p. 2453.
Report of an Itching Dermatitis Apparently Due to Schistosoma Cercariae. W. A. Holla and E. A. Lane.—p. 2458.

Serologic Tests in Syphilis Treated with Penicillin.—Rein discusses the factors which influence the length of time required to attain seronegativity in syphilitic patients treated with penicillin. Generally, patients with secondary syphilis require more time to acquire seronegativity than patients with seropositive primary lesions. In some patients with syphilis there develop more antibodies or reagin than in others after the same type of stimulus. The former patients usually require more time to attain seronegativity. Patients with high serologic titers at the onset of therapy may require more time to attain seronegativity than those with relatively low titers. Certain types of tests may remain positive long after other tests have become negative. The amount of penicillin, the type of penicillin and the length of time required to administer that amount of treatment may also affect the length of time to attain seronegativity. As a rule, the higher the total dosage of penicillin and the longer the period of time during which the treatment is administered, the shorter the time required to attain seronegativity. There are many exceptions to the aforementioned factors. It is of utmost importance to educate patients in the great need of reporting to physicians for serologic and clinical examinations at regularly monthly intervals for at least one year following the completion of penicillin therapy. These examinations are important as a guide to response to treatment, as a means to differentiate between serologic relapse and reinfection, as a means to predict an impending clinical relapse and as a means to detect masked syphilis following a concomitantly treated gonorrheal infection.

Northwest Medicine, Seattle

46:833-915 (Nov.) 1947

Medical Investigation of Obscure and Suspicious Deaths in Interest of Public Safety. A. R. Moritz.—p. 851.
Nephrolithiasis. J. H. Harrison.—p. 858.
Management of Ureteral Calculi. R. T. Scott.—p. 862.
Carcinoma of Ampulla of Vater. A. R. MacKay.—p. 865.
Surgical Kidney in Hypertension with Case Report. F. L. Meeske. —p. 868.

Pennsylvania Medical Journal, Harrisburg

51:115-240 (Nov.) 1947

Can We Retrieve Breast-Feeding? N. M. MacNeill.—p. 137.
The 1946 Erie County Chest X-Ray Survey. R. D. Bacon.—p. 141.
Reoperation for Glaucoma. P. C. Kronfeld.—p. 148.
*Roentgen and Vitamin A Therapy for Treatment of Warts: Comparison of Two Methods and Report of 315 Treated Cases. S. H. Fisher and W. E. Chamberlain.—p. 151.
Management of Feeding Problems. J. B. Bartram.—p. 156.
Toxicologist as Crime Detector. A. O. Gettler.—p. 159.
*Carcinoma of Prostate Gland: Analysis of 135 Consecutive Cases. W. I. Buchert, D. A. Culp and G. H. Jones.—p. 165.
The Psychotic Child. H. M. Little.—p. 174.
Cancer of Skin. A. C. Cipollaro.—p. 180.

Treatment of Warts.—This analysis by Fisher and Chamberlain includes all patients who were admitted to the Radiation Therapy Department of Temple University Hospital from 1931 to June 1945 for treatment of warts. The authors compare roentgen therapy with that of vitamin A, on the basis of 315 cases. Because chronic ulcers have sometimes developed after roentgen therapy for warts, physicians should be interested in methods that are free from danger of such sequelae. Oral administration of vitamin A, 100,000 units per day, is followed by disappearance of the wart in an encouraging percentage of cases. When the wart is situated on the plantar surface of the foot, the likelihood of cure and the patient's comfort are both enhanced by generous use of a callus file (a wooden stick covered with emery particles). When vitamin A therapy fails and roentgen therapy is resorted to, treatment should be limited to an extremely small area by using a shield of metallic lead in which a small hole has been cut, of the order of 2 to 4 mm. in diameter. Repeated applications of roentgen rays are particularly to be avoided. Sequelae such as chronic ulcers do not follow single applications, even with large doses. Furthermore, results with single applications of 1,500 to 3,000 r are at least as good as those obtained with multiple applications.

Carcinoma of Prostate Gland.—The 135 cases of prostatic carcinoma reviewed by Buchert and his associates represent 13 per cent of the total number of patients with prostatism treated during an eight year period. Carcinoma of the prostate is an insidious disease which usually does not cause symptoms until it is far advanced. Thirty per cent of the patients had demonstrable metastatic lesions when first examined. In 81 per cent of the patients the diagnosis was made or suspected following digital examination. Cystourethroscopic examination, roentgenologic studies for metastasis and serum acid and alkaline phosphatase studies are useful adjuncts. Radical perineal prostatectomy is the treatment of choice in selected cases. According to the best authorities, it is justified in 5 per cent or less of the patients. Obstructive symptoms can be satisfactorily relieved by transurethral resection of the obstructing tissue with minimal risk to life. Carcinoma of the prostate carries with it a poor prognosis. Fifty per cent of the patients who died did so during the first twelve months after seeking treatment. Bilateral orchiectomy and the administration of estrogens or both seem to be the treatment of choice for the relief of pain secondary to osseous metastasis. In patients with retention of urine transurethral resection followed by bilateral orchiectomy or estrogens or both seems to constitute the best treatment now available regardless of the presence or absence of demonstrable metastatic lesions. In patients without urinary obstruction orchiectomy and estrogenic therapy seem to be adequate.

Radiology, Syracuse, N. Y.

49:529-658 (Nov.) 1947

Role of Radiologist in Management of Patients with Intestinal Obstruction, with Special Reference to Use of Miller-Abbott Tube. E. C. Osgood.—p. 529.
*Bagasse Disease of Lungs. D. V. LeMone, W. G. Scott, S. Moore and A. L. Koven.—p. 556.
*Symmetric Calcification of Cerebral Basal Ganglia: Its Roentgenologic Significance in Diagnosis of Parathyroid Insufficiency. J. D. Camp.—p. 568.
*Emphysema: An Early Roentgen Sign of Bronchogenic Carcinoma. L. G. Rigler and G. M. Kelby.—p. 578.
Roentgenologic Study of Small Intestine: I. Neoplastic and Inflammatory Diseases. F. J. Hodges, R. W. Rundles and J. Hanelin.—p. 587.
X-Ray Signs of Altered Alimentary Function Following Autonomic Blockade with Tetraethylammonium. J. F. Holt, R. H. Lyons, Rosalie B. Neligh and others.—p. 603.
Acute Obstruction of Small Bowel: Value of Roentgen Examination in Early Diagnosis. J. Spencer and L. T. Thaxter.—p. 611.
Treatment of Epitheliomas of Skin. T. P. Eberhard.—p. 620.

Bagasse Disease of the Lungs.—According to LeMone and his associates inhalation of bagasse dust, derived from sugar cane after it has been crushed and the juice extracted, incites a pathologic process which has been termed "bagasse disease of the lungs" or "bagassosis." Bagasse is being used extensively in the manufacture of insulating building materials and refractory brick. It constitutes a serious industrial hazard unless properly handled. About two months of exposure to the dust are required before symptoms appear. The disease manifests itself as an acute febrile illness with extreme shortness of breath, a persistent cough with scanty mucoid sputum and profound weakness. The onset is insidious and gradual. Pulmonary changes incited by the inhalation of bagasse dust consist in a diffuse infiltration and consolidation, an acute bronchiolitis or pneumonia that is similar to that seen in pneumoconiosis but in one respect is greatly different. It is a reversible reaction, with the process undergoing resolution and the lung regaining its normal appearance on the roentgenogram. The etiologic basis is still obscure. Whether or not the pathologic reaction is due to fungi, bacteria or a virus associated with the dust, to an allergic response to the bagasse or its possible infectious agents or their products, to some chemical or physical property of the dust or to any combination of the foregoing factors has not been determined and is still under investigation.

Calcification of Cerebral Ganglions.—Camp says that, to date, at the Mayo Clinic, 12 cases of symmetric calcification of the cerebral ganglions have been observed in which there was definite clinical evidence of parathyroid insufficiency and tetany. In 1 case the calcification followed a thyroidectomy at the age of 19 years; in the other 11, the disease was of the spontaneous type. The pathologic basis for the roentgenologic changes is a colloid deposition in and around the finer cerebral blood vessels with subsequent calcification of the deposits, which coalesce and form vascular sheaths and concretions. Because of the rarity of spontaneous parathyroid insufficiency and the observance of 11 such cases in which symmetric calcification of the cerebral basal ganglions was observed, the author believes that the association of the two conditions should be emphasized. It is possible that some cases of cerebral calcification associated with mental deterioration and convulsive seizures reported in the literature may have included a parathyroid insufficiency. All patients with chronic parathyroid insufficiency should have a roentgen examination of the skull. In addition, a determination of the concentration of serum calcium should be made to establish or exclude parathyroid insufficiency in all cases in which roentgenograms show symmetric calcification of the cerebral basal ganglions. Treatment of the parathyroid insufficiency effects improvement in the mental condition and stops the convulsions without producing changes in the cerebral calcification; this suggests that the latter condition is not responsible for the mental deterioration.

Emphysema as Sign of Bronchogenic Carcinoma.—Rigler and Kelby think that obstructive emphysema has been insufficiently stressed as an early roentgenologic sign of bronchogenic carcinoma. This obstructive emphysema, which results from partial obstruction of the bronchus by the tumor, is best demonstrated by roentgenograms or fluoroscopic examination made during expiration. The transition from emphysema to atelectasis as the tumor grows and completely obstructs the bronchus may be readily determined by repeated roentgen examination. Five cases are reported in detail and 2 partially to illustrate the importance of these observations. Patients suspected of bronchogenic carcinoma but without frank roentgen evidence should always be examined in expiration as well as inspiration. Careful attention should be given to minor differences in radiability of the two lungs to determine whether obstructive emphysema is present. Such a determination should lead to further investigation by bronchography, planigraphy and bronchoscopy.

Surgery, Gynecology and Obstetrics, Chicago

85:675-808 (Dec.) 1947

Role of Vascular Spasm in Recovery of Strangulated Intestine: Experimental Study. H. Laufman and H. Method.—p. 675.
*Surgical Treatment for Symptoms Produced by Cervical Ribs and Scalenus Anticus Muscle. A. W. Adson.—p. 687.
Resection of Knee Joint for Suppurative Arthritis. J. E. Thompson, C. F. Stewart and W. H. Cassebaum.—p. 701.
Breast Cancer. H. C. Chase.—p. 712.
Laboratory and Clinical Experiences with Streptomycin Therapy in Management of Infections of Intestinal Origin. H. L. Silvani, S. Rothenberg, Helen Warmer and others.—p. 721.
*Microscopic Criteria for Diagnosis of Early Carcinoma of Cervix Uteri. E. E. Gurskis, D. C. Beaver and H. M. Nelson.—p. 727.
Acute Injuries to Neck Involving Food and Air Passages. M. E. Lichtenstein.—p. 734.
Treatment of Pancreatic Pain by Splanchnic Nerve Section. G. deTakats and L. E. Walter.—p. 742.
Surgical Treatment of Irreducible Intussusception in Infants. J. P. Barnes.—p. 747.
Relation of Protein Deficiency to Experimental Wound Healing. M. W. Kobak, E. P. Benditt, R. W. Wissler and C. H. Steffee.—p. 751.
*Papillary Carcinoma of Thyroid and Lateral Cervical Region: So Called "Lateral Aberrant Thyroid." G. Crile Jr.—p. 757.
Common and Uncommon Pathways in Spread of Tumors and Infections. E. Lachman.—p. 767.
Cholecystitis and Cholelithiasis: Analytical Report of 1,104 Operative Cases. R. Adams and A. Stranahan.—p. 776.
Standardized Method for Assessing Strength of Hand and Foot Muscles. F. H. Lewey, W. G. Kuhn Jr. and J. T. Juditski.—p. 785.
Acute Pancreatitis: II. An Experimental Study with Special Reference to X-Ray Therapy. T. C. Chisholm and R. E. Seibel.—p. 794.

Cervical Ribs and the Scalenus Anticus Muscle.—Reviewing his twenty-two years of experience in the treatment of symptoms produced by cervical ribs and the scalenus anticus muscle, Adson emphasizes the importance of the vascular test which indicates whether the volume of the pulse has been altered. It has been his experience that little is accomplished by scalenotomy unless the result of the vascular test is positive. He discusses the embryologic formation of supernumerary ribs. their incidence, etiologic factors and the symptomatology. His review of scalenotomy includes the 142 patients for whom scalenotomy was performed at the Mayo Clinic during the twenty-two years from 1925 to 1946 inclusive. He differentiates three groups. The first includes patients for whom scalenotomy was performed without resection of cervical ribs (63 patients). Group 2 includes patients for whom combined operations were performed, that is, scalenotomy and resection of cervical ribs by the anterior approach (26 patients). Group 3 includes patients for whom scalenotomy was performed in the absence of cervical ribs (53 patients). The results obtained in the latter group were not as favorable as those obtained in the first two groups. The author concludes that the treatment which he described in 1927, that is, scalenotomy and sectioning of the insertion of the scalenus anticus muscle, occasionally with resection of the distal portion of the muscle when the muscle is decidedly hypertrophied, constitutes the operation of choice. A combined operation, scalenotomy and resection of cervical ribs, is indicated when the cervical rib is completely formed and is situated high in the neck so that the brachial plexus must ride over the rib in its course into the axilla. Subtotal resection of the cervical rib can be accomplished with the use of a rongeur, through the same wound, by separation of the middle and lower trunks of the brachial plexus.

Early Carcinoma of Cervix Uteri.—Gurskis, Beaver and Nelson obtained slide files of the laboratory of Woman's Hospital and of the department of pathology of Wayne University College of Medicine in Detroit. A total of 15 were selected from several thousand cases. Nine of these did not disclose invasive carcinoma elsewhere in the cervix, and 6 revealed early invasive carcinoma in the same cervix. The criteria of early noninvasive carcinoma were interpreted as possessing the following characteristics: 1. The squamous epithelial cells had a decreased amount of cytoplasm with deeply stained oval nuclei. These changes were found in all 15 cases. 2. All cells of the epithelium resembled each other closely from the basal to the uppermost layer so that the basal layer was not distinguishable. This change was observed in 12 cases. 3. In all cases there was an increase in the number of cells of the stratum germinativum. 4. In 14 cases mitotic figures were present. 5. The basement membrane was not penetrated in any of the noninvasive cases. 6. The subepithelial tissue in all cases was infiltrated with lymphocytes. 7. Seven of the cases disclosed a line of demarcation between normal and carcinomatous epithelium. In 3 of these the transition was gradual, and in the others the demarcation was abrupt and distinct. 8. All 15 cases showed a loss of polarity of the cells. 9. The changes of early carcinoma were also found in areas of coexistent metaplasia in 8 cases. Usually the epithelium overlying these areas was involved in the same process. 10. In 2 cases leukoplakia existed in conjunction with the changes of early carcinoma in the surface epithelium. In 1 of these 2 cases invasive carcinoma was disclosed in some areas. The authors conclude that the results of their studies corroborate the earlier work of Rubin, Meyer, Schiller, Broder and others to the effect that cellular changes, which are regarded as the early manifestations of malignant transformation, develop in the surface stratified squamous epithelium of the portio vaginalis of the cervix. These changes occur before there is invasion and before there is clinical evidence of carcinoma.

Papillary Carcinoma of Thyroid.—Crile reviews observations on 21 patients with papillary carcinoma of the thyroid and lateral cervical region. All patients have been followed from five to twenty-one years, or until their death, and only 3 have died from cancer after they had lived for nine, fifteen and nineteen years, respectively, after the original thyroidectomy. One patient who has refused all treatment is well twenty-seven years after the appearance of the lateral cervical nodules and twenty-one years after these nodules were proved to be papillary tumors of the thyroid. In judging the results of treatment of papillary carcinoma of the thyroid the usual five year period is meaningless. In 16 consecutive patients with papillary tumors of the lateral cervical region, when the thyroid was carefully examined a primary tumor in the thyroid was found. The lateral cervical nodules are probably metastases from a tumor of the thyroid rather than, as was previously believed, primary tumors of congenital origin. Lateral cervical tumors may continue to form until the primary tumor in the thyroid is removed. After this no more lateral cervical nodules appear. In the few cases in which roentgen therapy has been given the results have been disappointing. Results of excision of the primary tumor and the lateral cervical and mediastinal metastases have been excellent. The lateral cervical nodules seldom invade muscles or blood vessels, and block dissection of the neck is therefore not necessary. Since most of the patients are young women, it is an advantage to perform the operation through a thyroidectomy incision or, in the more extensive cases, through an incision parallel to the sternomastoid. The tumor in the thyroid may be small and often is not palpable preoperatively. It usually is scarred or calcified and may not enlarge appreciably over many years in spite of the fact that it continues to give rise to lateral cervical metastases. The primary tumor in the thyroid and the lateral cervical and mediastinal metastases should be excised.

United States Naval Med. Bulletin, Washington, D. C.

47:937-1144 (Nov.-Dec.) 1947. Partial Index

Dual Perforated Peptic Ulcer and Duodenal Fistula. L. G. Bell, J. C. Owens and W. J. MacMurtrie Jr.—p. 937.

*Bladder Management Following Spinal Injury. L. L. Veseen, W. W. Miller Jr. and G. C. Paynter.—p. 945.

Removal of Ureteral Calculi by Catheter Traction with Report of 3 Cases. J. J. Robbins.—p. 954.

*Renal Decapsulation in Treatment of Oliguria and Anuria. E. S. Lowe.—p. 959.

Yaws Treated with Single Massive Doses of Penicillin. S. L. Arje. —p. 965.

Extragenital Primary Syphilis. L. K. MacClatchie.—p. 970.

Arachnidism with Report of Case. D. E. Billman.—p. 975.

Review of Neurosyphilis. R. E. Rock and E. F. Mee.—p. 983.

Management of Wounds and Wound Healing. T. C. Ryan.—p. 991.

Experiences of Medical Officer in Air Transport of Patients by Naval Air Transport Service. J. P. Pollard.—p. 1000.

Sarcoma of Soft Tissues: Discussion and Report of 8 Cases. A. I. Hollcb.—p. 1005.

Mucous Membrane Grafts from Inferior Turbinate in Reconstruction of Orbit. H. P. Schenck.—p. 1014.

Instrument Sterilization in Desert Country. C. E. Dawson.—p. 1019.

Recurrent Inguinal Hernia: Report of 2 Unusual Cases. R. B. Brown and L. L. Haynes.—p. 1053.

Eosinophilic Granuloma of Bone, with Report of 2 Cases. W. M. Silliphant and D. B. Hull.—p. 1058.

Extragenital Choriocarcinoma of Male with Bilateral Gynecomastia: Report of Case. H. J. Caes and R. W. Cragg.—p. 1072.

*Methyl Salicylate Poisoning: Report of 2 Cases and Review of Literature. J. J. Cancelmo Jr.—p. 1077.

Bladder Management Following Spinal Injury.—Veseen and his associates assert that genitourinary complications are the chief causes of the high morbidity that follows injury to the spinal cord. They discuss the neural anatomy of the bladder and stress that the ultimate aim of the urologist is to assist nature in producing the return of normal bladder function or the closest alternative, the automatic bladder. The authors outline a program for management which has been successful in their experience.

Renal Decapsulation.—Lowe says that renal decapsulation has been almost completely discredited in recent years, undoubtedly because this procedure was employed in conditions which did not and could not respond to it; however, decapsulation appears to be gaining a little of its previous acceptable standing as surgeons obtain favorable results with it in treatment of cases of anuria and oliguria. The author reports the case of a man who had ingested a "can" of oxalic acid two hours previously in a suicidal attempt. This case of chemical nephrosis caused by ingestion of oxalic acid did not respond favorably to medical treatment, but developed into anuria, alarming edema and nitrogen retention despite the administration of large amounts of fluids intravenously. Immediately after bilateral decapsulation, the kidneys began to function, secreting 1,240 cc. of urine in the first twenty-four hours postoperatively and 2,000 cc. in the second twenty-four hours. Urinary output was normal thereafter. Blood urea nitrogen began to fall immediately after the operation, and returned to normal. The urine cleared after the operation. It is concluded that the anuria was relieved by decapsulation of the kidneys, indicating that the operation has merit in selected cases.

Methyl Salicylate Poisoning.—Cancelmo presents 2 cases of acute methyl salicylate poisoning with a brief review of the literature. The 2 seamen whose cases are reported had drunk the contents of a bottle containing 120 cc. of oil of wintergreen because it tasted good and they thought that there was alcohol in it. One of the men had ingested about 90 cc. and the other one about 30 cc. The latter survived, but the former died in spite of the fact that some of the fluid had been aspirated. The author says that convulsions, fever and pneumonia present therapeutic problems. Until the conflicting views regarding the physiochemical changes are settled, one should treat these patients symptomatically, following the chemical changes in the blood and urine as well as possible and treating accordingly. There is clinical evidence to warrant and experimental evidence to substantiate the use of sodium bicarbonate, intravenous fluids (dextrose, saline and lactate solutions), vitamin K, calcium gluconate and sedatives in the treatment of salicylate intoxication. Methyl salicylate is a potent and fairly rapidly acting poison. Bottles containing this drug should be clearly labeled "poison."

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Brain, London

70:225-360 (Sept.) 1947

Anatomy of Traumatic Epilepsy. W. R. Russell.—p. 225.
Diffuse Progressive Metachromatic Leukoencephalopathy: Form of Schilder's Disease Related to Lipoidoses. R. M. Norman.—p. 234.
*Penicillin in Suppurative Lesions of Brain and Meninges. H. Cairns. —p. 251.
Muscle Tone and Organization of Motor Cortex. J. F. Bosma and E. Gellhorn.—p. 262.
Atypical Intracerebral Hemorrhage with Special Reference to Cerebral Hematoma. E. C. O. Jewesbury.—p. 274.
Terminal Connexions of Olfactory Tract in Rabbit. W. E. Le Gros Clark and M. Meyer.—p. 304.
Role of Pyramidal System in Willed Movements. F. M. R. Walshe. —p. 329.

Penicillin in Suppurative Lesions of Brain.—Cairns shows that the access of penicillin to contaminating or infecting bacteria is important particularly in the central nervous system, not only in brain wounds and abscesses but also in pyogenic meningitis, in which blockage of the cerebrospinal pathways may interfere with the spread of penicillin injected intrathecally. In the first 16 cases of pneumococcic meningitis treated with intrathecal penicillin, sulfonamide compounds were withheld, and there were 12 recoveries. Thereafter sulfonamide drugs by mouth were always combined with penicillin, since the two drugs are not antagonistic and the preadmission history in the majority of cases has clearly shown the beneficial effect of sulfonamide compounds. In adequate oral or systemic dosage these drugs, in particular sulfadiazine, usually control the symptoms of pneumococcic meningitis, at least for a time. The author reviews the results of treatment in pneumococcic and meningococcic meningitis, purulent pachymeningitis and brain abscess. He concludes that penicillin is not miraculous in its effects. Given access to sensitive organisms it will assist in their destruction only so long as its concentration remains adequate; but when it has disappeared from the infected area, organisms multiply once more and attack the tissues with their original virulence. The use of penicillin therefore demands a greater degree of precision and planning than has been accorded to less powerful remedies.

British Medical Journal, London

2:855-896 (Nov. 29) 1947

*Value of B.C.G. Vaccination in Control of Tuberculosis. G. S. Wilson. —p. 855.
Sympathectomy and Intraspinal Alcohol Injections for Relief of Pelvic Pain. J. P. Greenhill.—p. 859.
Relief of Pain in Intractable Cancer of Pelvis. M. Kenny.—p. 862.
*Staphylococcal Infection Due to Penicillin-Resistant Strains. Mary Barber.—p. 863.
Allergy to Penicillin with Symptoms of Serum Sickness. A. G. Wilkinson and K. Zinnemann.—p. 865.
Chronic Battle Neurosis Treated with Leukotomy. W. Sargant and C. M. Stewart.—p. 866.

BCG in Control of Tuberculosis.—Wilson reports investigations in which a control group of persons was studied along with a group that was vaccinated with BCG (Bacillus of Calmette and Guerin). He concludes that the documentary evidence so far available is insufficient to allow an estimate of the degree of protection it affords or even to prove conclusively that, in a civilized population, it has any protective effect at all. Some of the disadvantages of BCG vaccination are enumerated, and it is argued that, unless the gains from its use are likely to be substantial, BCG vaccination may not be worth while. Since the risk of dying from tuberculosis in the first year of life is so small, universal vaccination of infants is out of the question, and vaccination, if it is used, should be restricted to specially exposed groups like nurses, medical students and children in tuberculous families. It is doubted whether the relative degree of immunity that might be conferred by BCG vaccination would have any greater effect in lowering the mortality than measures designed to shield nurses against undue risk of exposure to tuberculous infection. Since the normal antibody-producing mechanism does not seem to reach maturity till toward the end of the first year of life it might be advisable, if BCG is to be used, to remove the infant from its tuberculous home at birth and delay vaccination with BCG till it is at least 6 months of age.

Staphylococci Resistant to Penicillin.—Barber shows that the incidence of strains of Staphylococcus pyogenes that are grossly resistant to penicillin is increasing rapidly. In a previous study out of a series of 200 patients yielding cultures of Staph. pyogenes penicillin-resistant strains were isolated from 25 (12.5 per cent). In analyzing a series of 100 patients with staphylococcic infection between February and June, 1947, it was found that as many as 38 yielded penicillin-resistant strains. In some cases the penicillin-resistant organisms are present in the original lesion but overgrown by sensitive strains until penicillin treatment leaves them a clear field by getting rid of the latter. Hospital infection with Staph. pyogenes is, however, fairly common, and, penicillin-resistant staphylococci occur far more often in patients who have been in hospital some time than in new admissions. In any hospital using large quantities of penicillin bacteria resistant to its action are probably increasing at the expense of those that are sensitive, and it seems not impossible that in time the resistant organisms will be the sole survivors. That a penicillin-resistant strain of Staph. pyogenes once it has got a footing in the hospital may spread from patient to patient is well illustrated by a series of cases occurring in a unit of the author's hospital. The best method for the detection of penicillin-resistant bacteria in specimens sent to the laboratory is to plate out the infected material direct onto a penicillin ditch plate, using a concentration of about 10 units of penicillin per cubic centimeter of agar in the ditch.

Edinburgh Medical Journal

***54:**465-528 (Sept.) 1947*

Production of Streptomycin. S. W. Challinor and H. K. King.—p. 465.
Physical and Chemical Factors Concerned in Hemolysis. E. B. Hendry.—p. 476.
Mass Radiography in Glasgow: Report on First 50,000 Examinations. A. Maclean.—p. 488.
Treatment of Placenta Previa. J. Sturrock.—p. 496.

Indian Medical Gazette, Calcutta

82:379-442 (July) 1947. **Partial Index**

Treatment of Amebic Liver Abscess with Secondary Infection. R. N. Chaudhuri and H. Chakravarti.—p. 379.
New Treatment of Scabies. D. N. Roy and S. M. Ghosh.—p. 380.
Early Diagnosis of Tsutsugamushi. N. Khan.—p. 381.
Rheumatic Diseases and Mouth Infection. A. Ganguli.—p. 389.
An Unusual Phenomenon in Strychnine Convulsions. A. M. J. Shirazi. —p. 394.
*Evaluation of Prothrombin Response to Vitamin K as Liver Function Test. P. N. Wahi.—p. 396.
Prognostic Significance of Leukocytic Count in Bubonic Plague. P. M. Wagle and R. B. M. Colah.—p. 399.
Tropical Eosinophilia with Melaena as Complication During Arsenical Therapy: Case Report. A. Chand and D. C. Gupta.—p. 402.
Heterozygous Rh Transmission in Large Family with Case of Erythroblastosis Fetalis. K. S. Ranganathan.—p. 404.

Prothrombin Response to Vitamin K as Liver Function Test.—The observations presented by Wahi are the result of his efforts to correlate the hepatic function tests with observations in biopsy of the liver. During these studies, which included all types of disorders of the liver, it became obvious that all such patients had hypoprothrombinemia, which showed a varying response to parenteral administration of vitamin K. In cases with intense jaundice there is a low level of plasma prothrombin. If after administration of vitamin K there is a rapid return of the prothrombin level to normal, the jaundice is likely to be obstructive, while if the response is poor, a parenchymatous lesion is present.

Journal of Royal Army Medical Corps, London

89:91-142 (Sept.) 1947

Acrylic Ocular Prosthesis. F. J. Sellers.—p. 91.
Chemoprophylaxis of Malaria. R. W. Scott.—p. 101.
Suppression of Malaria by Mepacrine. G. Wynne-Griffith.—p. 112.
Psychiatric and Allied Aspects of Problem of Venereal Disease in Army. T. A. Ratcliffe.—p. 122.
**Pitressin Hydration Test in Diagnosis of Epilepsy. D. Cappon.—p. 132.*
Sulfonamide Anuria. J. A. V. Nicoll.—p. 135.
Note on Sickling and Flying. G. M. Findlay, E. A. Boulter and C. B. MacGibbon.—p. 138.

"Pitressin" Hydration Test in Diagnosis of Epilepsy.—According to Cappon the differentiation between epilepsy and hysteria is often difficult. He cites the case of a young soldier who presented most of the clinical criteria of hysterical fits:

a poor psychiatric background, a psychopathic personality, witnessing fits before, fits occurring always in the presence of other persons without severe injury, no incontinence, atypical convulsions, the fits starting fairly late in adolescence. The "pitressin" hydration test was employed by giving an initial dose of 0.5 cc. of a "pitressin" preparation intramuscularly, with 300 cc. of water orally and subsequently at two hour intervals injections of 0.25 cc. of the drug followed by 300 cc. of water. A total of ten injections was given. An intake and output chart showed the antidiuretic effect with retention of water. The body weight was increased by 2 per cent. After the fifth injection the patient had an epileptiform convulsion. Thus the "pitressin" test proved the existence of epilepsy, and effective treatment was instituted. The author stresses that in the absence of facilities for electroencephalography the "pitressin" hydration test may be found useful in the diagnosis of epilepsy.

Lancet, London

2:781-816 (Nov. 29) 1947

Hepatic Syndrome of Wide Distribution Illustrated by Lesions in Malaria and Blackwater Fever. B. Maegraith, W. H. H. Andrews and D. Gail.—p. 781.
Epidemic Myalgia or Bornholm Disease in South India: Review of 19 Cases. H. J. Hamburger and C. McNeil.—p. 784.
Symptoms Due to Meckel's Diverticulum. S. Taylor.—p. 786.
Determination of Hemoglobin: II. Haldane Hemoglobin Standard Compared with Iron and Gasometric Estimations. E. J. King, M. Gilchrist, I. D. P. Wootton and others.—p. 789.
Dissemination of Hemolytic Streptococci in Air. L. Colebrook and W. P. D. Ross.—p. 792.
*Calciferol in Treatment of Chilblains. S. T. Anning.—p. 794.

Calciferol in Chilblains.—Anning points out that calciferol has been widely advertised as effective in the treatment of chilblains. The author compared the incidence of chilblains during last winter in 103 patients who received calciferol in large doses for lupus vulgaris, sarcoidosis and the like with the incidence in 159 patients not given calciferol. There was no statistically significant difference between the test and control groups as regards the incidence of chilblains. These results suggest that calciferol is ineffective in preventing chilblains. Calciferol appears to have no effect in the treatment of chilblains, since chilblains developed and persisted about the same length of time in all the groups. As treatment with calciferol in high dosage is not without danger, it would be as well if its use for chilblains were discontinued.

Tubercle, London

28:223-245 (Nov.) 1947

*Endocavitary Aspiration: Its Practical Applications. V. Monaldi. —p. 223.
Secondary Pleurisy with Effusion in Pulmonary Tuberculosis. B. C. Thompson.—p. 229.
Tuberculosis in Post-War Europe An International Problem. M. Daniels. —p. 233.

28:247-268 (Dec.) 1947

Further Investigations Concerning Relation Between Erythema Nodosum and Tuberculosis. H. J. Ustvedt.—p. 247.
Persistent Pulmonary Collapse After Artificial Pneumothorax Treatment. B. Couts.—p. 252.

Endocavitary Aspiration.—Monaldi cites physiopathologic and clinical aspects of cavity formation which led him to develop his method of endocavitary aspiration. He cites cases which illustrate the efficacy of the method when employed either alone or in conjunction with surgical collapse therapy. Statistics analyzing the good results and the failures are lacking, chiefly because records have been lost during the war. If the intracavitary suction method is applied with a rigorous and careful technic it entails no dangers. When it is accompanied by collapse treatment it widens the field of therapeutic possibilities, because many patients who could not be operated on without this method may now be treated. It simplifies the application of thoracoplasty by making it more limited, by improving the conditions under which it is performed and by considerably raising the percentage of successful operations. The autonomous endocavitary aspiration method has a wide application. It will be fully developed only when it is possible to solve the technical problem concerned with the closure of the draining bronchus. The documentary evidence to date concerning the therapeutic possibilities of this method used alone consists of approximately 100 patients who work, enjoy perfect health and display no symptoms of illness.

Acta Medica Orientalia, Jerusalem

6:277-306 (Sept.) 1947

Uterine Malformation in Pregnancy and Labor. A. Sadovsky and A. Brzezinsky.—p. 277.
*Undescended Scapula (Sprengel's Deformity): Report of 3 Cases and New Operative Technic of Fixation. E. Spira and A. Axer.—p. 282.
Medical Uses of Papain with Special Reference to Allergic Diseases. M. J. Gutmann.—p. 288.
Case of "Rattling Shoulder Blade." R. Leffmann.—p. 293.
Fructose, the Sugar Constituent of Human Seminal Plasma: Preliminary Report. J. Leibovitz and M. Michael.—p. 296.
Some Notes About Psychoanalysis, Its Devolopment and Present Trends. E. Gumbel.—p. 298.

Sprengel's Deformity.—Spira and Axer describe Sprengel's congenital upward displacement of the scapula in 2 boys, aged 10 and 5 years, respectively, and in a girl aged 13. In 1 patient the condition was corrected by a new surgical technic. The plan of operation fell into three phases: (1) widening the shoulder girdle; (2) lowering the scapula and removing the omovertebral bone and (3) fixation of the lowered scapula. The functional result of this operation was excellent, but cosmetically it was only satisfactory. The authors suggest further technical improvements in the operation.

Acta Orthopaedica Scandinavica, Copenhagen

17:1-172 (No. 1-2) 1947. Partial Index

Contribution to Technic in Fusion Operations on Spine. A. Berg.—p. 1.
*Retroposition of Vertebrae as Early Sign of Tuberculous Spondylitis of Lumbar Spine. L. Hagelstam.—p. 31.
Some Cases of Paradiscal Defects in Anterior Portion of Vertebral Body, with Remarks on Pathogenesis of Lesions in Question. A. Hellstadius.—p. 50.
Bipartite Carpal Scaphoid Bone. T. Jerre.—p. 70.
Ollier's Disease and Its Relation to Other Forms of Chondrodysplasia. A. Langenskiöld.—p. 93.

Early Signs of Tuberculous Spondylitis.—Hagelstam says that tuberculous spondylitis does not always become evident in roentgenograms; large vertebral foci were found at necropsy when roentgenograms were negative. In the course of the methodical examination of roentgenograms of 59 patients with tuberculous spondylitis he observed in some a backward displacement of one or more vertebrae before the tuberculous vertebra had collapsed, the process having been localized to the lumbar spine. He reports histories of several of these patients and concludes that an instability between the vertebrae in the lumbar part of the spine arises early in the clinical course of tuberculous spondylitis as well as with degeneration of a disk. In the roentgenogram this instability might show itself as a retroposition and might occur before any tuberculous changes in the vertebra itself are visible. When tuberculous spondylitis in the lumbar part of the spine is suspected the retroposition of a vertebra favors the belief that the process is to be found in either vertebra adjacent to the injured disk.

Boletín de la Asociación Médica de Puerto Rico

39:391-428 (Nov.) 1947. Partial Index

*Surgical Treatment of Patent Ductus Arteriosus. D. Rodriguez Pérez. —p. 391.
Present Status of Thiouracil in Treatment and Presurgical Preparation of Patient with Basedow's Disease. C. B. Moore.—p. 415.

Surgical Treatment of Patent Ductus Arteriosus.—The subject of this report is an adolescent of 13 years who was normal up to the age of 12, when acute cardiac symptoms appeared. Roentgen examination of the chest and electrocardiograms showed abnormalities which disappeared after the operation, which consisted in ligation of the patent ductus arteriosus by Blalock's technic. The patient recovered and is normal one year after the operation.

Cervello, Naples

23:401-472 (Nov. 15) 1947. Partial Index

*Lumbopubic Electroshock in Therapy of Essential Enuresis. A. Pacifico. —p. 401.
*Penicillin in Therapy of Amentia. G. Zanetti.—p. 447.

Lumbopubic Electroshock in Essential Enuresis.—Lumbopubic electroshock consists of placing electrodes over the cutaneous segments corresponding to the second lumbar vertebra and pubic symphysis, and passing an electric current of 200 or

300 milliamperes (80 volts) for one tenth of a second. The treatment was administered to 11 children between the ages of 6 and 8 years and 1 youth of 16 years of age with nocturnal and diurnal enuresis. None of the patients had syphilis or spinal, urethral or vesical organic changes. Three patients in the group had epilepsy; treatment for enuresis failed in these cases. Shock therapy was given every other day up to a total of three or four. Enuresis was controlled from the first shock treatment in all cases, with the exception of the patients with epilepsy. The latter were given a daily additional shock treatment for six more days, without any effect. The treatment was well tolerated and presented no contraindications. The effect persisted for two months after discontinuation of treatment. This is a preliminary report.

Penicillin in Amentia.—The author resorted to penicillin therapy for five consecutive days in 5 cases of amentia of infectious origin. There was acute delirium with hallucinations or stupor, irregular fever, pronounced dehydration, anemia, gastrointestinal disorder, rapid loss of weight, dissociation between pulse and temperature, hypotension and oliguria. Complete recovery of the patients was obtained.

Klinische Wochenschrift, Heidelberg

24/25:257-288 (Feb. 1) 1947. **Partial Index**

*Factor in Serum, Increasing Erythrocyte Respiration. J. Pirwitz. —p. 263.

Effect of Insulin on Thyroid, Anterior Lobe of Pituitary Gland and Adrenal. E. Schulze.—p. 265.

*Range of Output of Heart Muscle with Pathologically Lowered Frequency: Conduction Disturbances of Various Degrees. H. Stollreiter.—p. 269.

Correlation Between Serum, Periston and Congo Red. R. Schubert and E. Wiegandt.—p. 273.

Increased Erythrocyte Respiration.—Pirwitz prepared a mixture in physiologic proportion of the serum of patients with anemia whose blood was strongly regenerating, and of erythrocytes of normal persons. The respiration volume of the mixed fluid was increased proportionally to the number of reticulocytes in the blood from which the serum was obtained. A powder was prepared from a dried mixture of equal parts of centrifuged erythrocytes of 10 normal persons. By adding this powder to the patient's serum definite conclusions could be drawn as to the intensity of the respiration-increasing factor in the serum of any patient. Additional experiments made it likely that the factor in the serum which increases the oxygen consumption of the erythrocytes may be identical with an erythropoietic factor in the serum which has previously been described by the author.

Heart Muscle and Pathologically Lowered Frequency.—Stollreiter studied the circulation of 7 patients between the ages of 40 and 70 years in whom disturbances of conduction of various degrees were demonstrated by the electrocardiogram. Three patients had a total heart block and 4 patients had a partial heart block. Central and peripheral slowing of frequency with 24 to 40 beats was predominant. In partial as well as in total heart block the heart muscle reacts to a lowered frequency which has continued for some time with dilatation and hypertrophy (increase in cardiac output and heart action, dilatation of the heart chambers due to enlargement of the heart to both sides). Decompensation of the heart with obstruction of the pulmonary circulation need not be present, although the myogenic reserves may be heavily taxed with it at rest. The minute volume at rest corresponded to the norm in 6 patients, and only in 1 patient was it reduced about 30 per cent. Increase in blood pressure was manifested frequently and corresponded to the large cardiac output. By placing an extra load on the heart the reduced output of the cardiac muscle could be demonstrated in those cases in which it was not yet evident at rest. Examination in standing position revealed reduction of cardiac output up to 68 per cent, which may be explained by the damage to the heart muscle in addition to the effect of the extracardiac regulation. This becomes even clearer with muscular work (turning work on the ergometer) when the highest increase in cardiac output may be only 37 per cent as compared to that of several hundred per cent in normal persons. Analysis of the circulation thus provides an explanation for the clinical picture associated with pathologically lowered frequency. Although the cardiac muscle of these patients at rest is taxed several times more heavily than that of the normal persons, decompensation by no means results at rest. It is obvious that with the changed mechanics of the heart and of the circulation treatment of decompensation of the cardiac muscle may be inadequate and only temporarily effective.

Prensa Médica Argentina, Buenos Aires

34:2035-2082 (Oct. 24) 1947. **Partial Index**

*Syndrome of Thrombosis of Posterior and Inferior Cerebellar Arteries. A. V. Di Ció, G. A. Lista and J. Remolar.—p. 2040.

Syndrome of Thrombosis of Posterior and Inferior Cerebellar Arteries.—The syndrome of thrombosis of the posterior and inferior cerebellar arteries is rare. It is more frequent in persons in the sixth decade of life. Thrombosis of cerebellar vessels, with either arteriosclerosis or atheromatous lesions, and syphilitic cerebellar arteritis are the most frequent causes. The symptoms are anesthesia and pain in the area of distribution of the trigeminal nerve, paralysis of the vocal cords, pharynx and velum palatinum, disorders of deep sensibility of the extremities and cerebellar symptoms. The contralateral symptoms are those of sensory disorders of the trunk and extremities, with dissociation of the syringomyelic type. The complete syndrome is definitely established several hours after sudden appearance of the first nervous symptoms (mainly trigeminal pain and trigeminal anesthesia to temperature). Decided spontaneous improvement occurs in the majority of cases. The treatment is symptomatic. Good results are obtained from antisyphilitic treatment when the syndrome is of cerebellovascular syphilitic origin. A certain degree of invalidism remains after disappearance of the syndrome. A final cerebral vascular accident always occurs within a period of time which varies between five and six years. The author reports a case in a syphilitic man aged 59 years. Spontaneous recovery occurred before administration of antisyphilitic treatment. Improvement became pronounced after antisyphilitic treatment.

Revista de la Asociación Méd. Argentina, Buenos Aires

61:713-766 (Oct. 15-30) 1947. **Partial Index**

*Streptomycin in Therapy of Bronchopleurocutaneous Fistulas of Tuberculous Origin. R. F. Vaccarezza and A. Raimondi Jr.—p. 713.

Streptomycin in Bronchopleurocutaneous Fistulas.—The subject of this report had two bronchopleurocutaneous fistulas as a result of peripleuritis complicating tuberculous pleural empyema. The fistulas lasted for eighteen and six months, respectively, without any tendency to close. Streptomycin in daily dose of 2 Gm. was given by the parenteral route for sixty days. The fistulas closed in fifteen and thirty days respectively.

Revista Médica de Rosario

37:733-822 (Sept.) 1947. **Partial Index**

*Agranulocytosis Provoked by Thiouracil. J. Solis and T. C. Minnhaar. —p. 733.

Thiouracil Agranulocytosis.—Hemograms were repeatedly made in the course of thiouracil treatment of 2 patients with hyperthyroidism. Both patients were women 53 years of age. In the first case the hemogram showed agranulocytosis on the twenty-second day of thiouracil treatment. The drug was discontinued although definite clinical symptoms of agranulocytosis did not appear. In the second case clinical symptoms of acute agranulocytosis appeared in the course of the third month of administration of the drug. The hemogram was normal the day before the appearance of agranulocytosis, although there was relative leukopenia. It was of the agranulocytic type two days later. Penicillin was successfully administered in both cases. Solis and Minnhaar emphasize: (1) the importance of repeated hemograms in the course of thiouracil treatment; (2) the unusual occurrence of a normal hemogram before appearance of agranulocytosis; (3) the significance of leukopenia (even under 4,000 leukocytes) as a warning of possible changes in the blood, and (5) the value of penicillin treatment and discontinuation of thiouracil.

Book Notices

Hodgkin's Disease and Allied Disorders. By Henry Jackson, Jr., A.B., M.D., Assistant Professor of Medicine, Harvard Medical School, Boston, and Frederic Parker, Jr., A.B. M.D., Associate Professor of Pathology, Harvard Medical School. Oxford Medical Publications. Cloth. Price, $6.50 Pp. 177, with illustrations. Oxford University Press, 111 Fifth Ave., New York 11, 1947.

Professors Jackson and Parker of Harvard are admirably qualified for this pathologic and clinical study of Hodgkin's disease and of related primary neoplasms of lymph nodes. This book represents the fruits of long study of a wealth of material, and its compilation obviously has been a labor of love.

The diagnosis of Hodgkin's disease must rest on a properly executed biopsy where the essential feature is the presence of Reed-Sternberg cells. The authors believe that Hodgkin's disease should be divided into three types, paragranuloma, granuloma and sarcoma, because the pathologic picture, clinical aspects and prognosis differ in each type; however, transition forms of these types occur. Paragranuloma is confined to lymph nodes and has a complete lack of invasiveness, but Hodgkin's granuloma, a more virulent disease, may involve and infiltrate any organ. The authors are of the opinion that the evidence bespeaks an infectious or inflammatory process for the first two forms, whereas Hodgkin's sarcoma behaves as a true tumor. These opinions are not apt to be widely adopted *in toto*, since the three forms of Hodgkin's disease which the authors describe can be more simply conceived as the same disease developing at different rates from slow to fast, respectively.

The authors cultured a small gram-positive anaerobic gas-forming bacillus from the lymph nodes in a "considerable number" of cases of Hodgkin's disease. They wisely refrain from implicating this organism as the etiologic agent of the disease, which, as they state, has yet to be discovered. Their advocacy of the inflammatory nature of Hodgkin's disease, however, is not in accord with the opinion of most workers, who in increasing numbers regard the disease throughout as a neoplasm.

Two of the most interesting present developments in Hodgkin's disease have been the observations of Grand and other members of the Chambers' school who found that extracts of lymph nodes involved by this disease have a necrotizing effect on cells in tissue culture due to a filtrable agent; this work is not discussed. Also, the nitrogen mustards have been extensively investigated as therapeutic agents in Hodgkin's disease, and it is unfortunate that Jackson and Parker have had no personal experience with these materials.

In addition to Hodgkin's disease, which comprises about two thirds of the volume, there are chapters on reticulum cell sarcoma, lymphosarcoma, lymphocytoma, giant follicle lymphoma, plasmocytoma and endothelioma. At the end of each chapter there is a series of magnificent plates illustrating the microscopic anatomy and roentgenographic features of the diseases discussed.

The Problem of Fertility: Proceedings of the Conference on Fertility Held Under the Auspices of the National Committee on Maternal Health. Edited by Earl T. Engle. Cloth. Price, $3.75. Pp. 251, with illustrations. Princeton University Press, Princeton, New Jersey; Oxford University Press, Amen House, Warwick Sq., London, E. C. 4, 1946.

This book comprises sixteen papers read at the conference of the National Committee on Maternal Health, held in February 1946. Much valuable material is contained in them. Although some papers are mainly of practical importance for the veterinarian and animal breeder, they are of great interest to the progressive physician. For the gynecologist there is much of interest concerning the changes of the ovary at the time of ovulation, the biology of human and animal spermatozoa and their viability and behavior in the cervix and the other parts of the female genitalia. Artificial insemination and the changes in the cervical mucus during the menstrual cycle are admirably discussed by experts in this as in the other fields. The impression gained from reading this book is of the great progress achieved in the last few years in knowledge of the reproductive process. This small but comprehensive book deserves to be read carefully by every biologist, veterinarian, gynecologist and urologist.

The Engrammes of Psychiatry. By J. M. Nielsen, B.S., M.D., F.A.C.P., Associate Clinical Professor of Neurology and Psychiatry, School of Medicine, University of Southern California, Los Angeles, and George N. Thompson, A.B., M.D., Assistant Clinical Professor of Neurology and Psychiatry, School of Medicine, University of Southern California, Los Angeles. Fabrikoid. Price, $6.75. Pp. 509, with 28 illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Ill., 1947.

The dust jacket of this volume states that the system of biologic psychiatry elucidated within removes all the mysticism of psychiatry which has puzzled physicians in other branches of medicine. This is fine except for the fact that one fears that the psychiatrists themselves will become puzzled on considering many of the concepts postulated in the book. The jacket indicates that "the validities set forth will enable physicians and students to now move in an orderly manner, accurately, and with confidence in this comparatively new field." In the preface the authors indicate their approach by stating that they believe that anatomy and physiology of the brain offer the only true basis for an understanding of mental disturbances! They aim to present in this book the anatomy and physiology of human behavior.

After an introduction, the writers proceed to a discussion of conation, which, they conclude, depends on a motor mechanism made up of "three hierarchies of cerebral structure—the basal one being the periaqueductal gray matter; the thalamic, the ventrolateral nucleus; and the cortical, the rolandic area."

The chapters which follow consider such subjects as consciousness, awareness, attention, the instincts, the emotions, the will and personality. Regarding the instincts, the authors state (page 40) that "the instincts which are present at birth have their neuronal patterns in the diencephalon. Those which require knowledge must await cerebral myelination before they can express themselves; those which require gonadal development must await puberty." On the same page it is stated that the instincts "are the source of all purpose and desire; hence they are the foundation of behavior. Intellect may modify and inhibit instinctive drives but rarely does it set aside the force of an instinct."

It is admitted that quoting out of context may sometimes be unfair; nevertheless it is believed that the following quotations should be considered. In a consideration of free will and determinism (page 48) the authors note in discussing premeditation, and so forth: "As there must be a final appeal, there is no appeal from the ruling of the supreme court. Our rulings in this country by a vote of 5 to 4 in the highest court are mute evidence that the best judgments are differently motivated—the best judges do not have a completely free will." It is difficult to see how court decisions based on an interpretation of the law can become involved in a discussion of free will.

Proceeding through a discussion of some definite mechanism of the mind, the authors discuss the psychoneuroses. They find the dynamic criterion, largely developed by the freudian school, to be of value, and note that the dynamics cannot always be found. They state that "the ability to find them depends largely upon the skill of the person doing the searching. Just as the 'silent areas' of the brain are silent only to those who do not understand their language, so are the psychoneurotic mental mechanisms hidden from the person unaware of their influence on cerebral physiology."

In their discussion of the psychopathic personality, the writers find that the location of cerebral trauma resulting in psychopathy is important but difficult to establish. They discuss cerebral lesions and end by saying: "Nevertheless much clinical experience points to frontal lobe lesions as causes of psychopathic behavior."

In the discussion of schizophrenia it is noted that the early symptoms are apathy or emotional poverty, retraction from environment and so forth. As these indicate to the authors a disorganization within the diencephalon, they state that "we believe that the basic pathology is an engrammatic diencephalic disorganization."

Manic depressive psychosis, involutional disorders and the syphilitic psychoses come in for rather complete consideration. On page 288 one notes that in discussing involutional disorders the authors state that "The pathological physiology is apparently a partial diencephalic disorganization along with endocrinous.

involution. The latter reflects in turn on the diencephalic function with consequent depression of function."

There are numerous other quotations which one might utilize to indicate that this mechanistic-anatomic approach misses the point throughout. Very few psychiatrists will concur in the hypotheses expounded or the conclusions drawn, and the book is not recommended.

Entstehung und Früherfassung des Portiokarzinoms: Weitere Erfahrungen mit der systematischen Kolposkopie an der Zürcher Frauenklinik, zugleich ein Beitrag zur Frage der Krebsentstehung. Von Hansjakob Wespi, Chefarzt der geburtshilflichgynäkologischen Abteilung am Krankenhaus Frauenfeld, ehemals I. Oberarzt der Universitäts-Frauenklinik Zürich. Cloth. Price, 18 Swiss francs. Pp. 183, with 94 illustrations. Benno Schwabe & Co., Klosterberg 27, Basel 10, 1946.

Wespi has made a study by conventional histologic methods of the epithelium of the uterine cervix with special reference to cell types which may be considered precancerous. He concludes that adult, fully differentiated epithelium does not give rise to neoplastic cells, but rather that the change antecedent to cancer is in the germinal layer. Evidence is advanced that atypical cells, indistinguishable from precancerous ones, are associated with injury, inflammation and endocrine imbalance, although quantitative measurements of the imbalance are not specified. Emphasis is given to the long period of latency which may exist before a precancerous area develops the power of unrestrained growth. This is, of course, quite in accord with the observation of other groups. The author makes special reference to the multicentric origin of cancer of the cervix. He advances the theory that multiple origin is evidence against the origin of cancer by the mutation of normal cells and in favor of the virus theory. This volume can be recommended to all those interested in cervix cancer as a scholarly treatise of a conventional type.

Fatigue and Impairment in Man. By S. Howard Bartley, Ph.D., Professor of Research in the Visual Sciences, Dartmouth Eye Institute. Dartmouth Medical School, Hanover, N. H., and Eloise Chute, M.A., Research Associate in the Visual Sciences, Dartmouth Eye Institute, Dartmouth Medical School. Foreword by A. C. Ivy, Ph.D., M.D., Vice President, Chicago Professional Colleges, University of Illinois, Chicago. Cloth. Price, $5.50. Pp. 429, with 60 illustrations. McGraw-Hill Book Co., Inc., 330 W. 42d St., New York 18, 1947.

This is a thoughtful and well written introduction to an important and difficult subject. The factors which limit human work productivity and endurance are numerous and complex. Besides such obvious things as physical defects and frank disease states, there are large intraindividual and interindividual differences which reflect innate peculiarities, the immediate environment in all its complexity and the physiologic and psychologic states. The scope of the subject makes it necessary to survey a great variety of facts which are presumably basic to the synthesis which is called human behavior. The result is in part a sort of combination textbook of physiology and psychology with inferences as to application to fatigue. The expert may be impatient with the repetition of familiar facts and may disagree on emphasis. The tyro may often find himself beyond his depth and may wish for more didactic statements of "do's and don'ts." But the book should have much value to the intermediate class —physicians, plant engineers, sociologists, personnel managers and the like. It might have been better if the book could have been delayed a year or two. A great deal of important research from the war period and immediately after is not represented; the references to the literature, such as those on the effects of hot environments and on metabolism and nutrition, are already somewhat out of date in some areas.

Venereal Diseases in General Practice. By Svend Lomholt, M.D., O.B.E., Prof. of Clinical Dermatology, Copenhagen. With a supplement on Penicillin, Mapharside, Sulphathiazole, etc. Fabrikoid. Price, 25s. Pp. 233, with 117 illustrations. London: H. K. Lewis & Co., Ltd., 1946.

This is an English edition of the Danish textbook which has been used widely throughout the Scandinavian countries. Delayed in publication because of the German occupation of Denmark, the book now is out of date, not so much in the clinical aspects of syphilis as in respect to the discussions on therapy. The clinical manifestations of early syphilis are well covered and beautifully illustrated; the late manifestations of the disease, aside from the benign late lesions of the skin, are conspicuously slighted.

Synopsis of Allergy. By Harry L. Alexander A.B., M.D., Professor of Clinical Medicine, Washington University School of Medicine, St. Louis. Second edition. Fabrikoid. Price, $3.50. Pp. 255, with 22 illustrations. The C V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1947.

This new edition presents the essentials of allergy in a compact form and includes consideration of topics which have arisen since the first edition was published. These include the so-called antihistaminic drugs, work in vascular allergy, the relation of allergy to infectious diseases and sensitization to drugs and chemicals. These newer subjects are well handled. The section on bronchial asthma remains the best part of the book and is much better covered than any other section. There is an appendix which contains miscellaneous information, e. g., preparation and standardization of extracts, some sources of allergens, description of various methods of testing, elimination diets and tables concerning ragweed distribution and causes of contact dermatitis. The reader is given a bird's eye view of the subject of allergy, but for more detailed instructions regarding particular phases of allergy he must consult larger books or medical articles, a few of which are noted in this volume.

Drawbacks exist. The statement that "the skin test which was looked upon as absolute is now regarded as unreliable" *(page 17) implies that skin tests are futile and a waste of time.* Nothing is further from the truth, and the author undoubtedly did not mean to imply that skin tests are without value. Every worker in the field know that skin tests, properly done and properly interpreted, represent a great advance in the detection of causes of allergic symptoms; they rank close behind the careful history, examination and clinical trial, and in some cases they actually take precedence. The author, too, has apparently completely accepted the theory that contact between a specific antibody "and the atopen causes the release of histamine (H-substance)." This theory may be correct but has not been proved. The list of materials used for skin testing is fairly complete but should certainly include more molds, karaya gum and May flies. The author states that "frequently only some thirty common atopens are used for routine testing." There is no doubt that when one limits his testing to so few a number he will miss some important reactions. The more different materials used for testing the more the chance of finding something which will lessen the number of so-called "nonsensitive" or "intrinsic" cases. Surgery of the nose and nasal sinuses is advocated a little more strongly in intractable patients than by most allergists. The swing recently is distinctly away from nasal surgery except for purulent conditions, severe obstruction and large mucous polyps. Most allergists do not agree that "specific pollen therapy (for hay fever from tree pollen), as a rule, is not indicated" (p. 118). The section on the various allergic conditions of the eyelids is meager. The section on allergic dermatoses is excellent; allergy to nail polish is frequent and should be included (p. 180). The use of tetanus and diphtheria toxoids should be discussed under "serum allergy." Despite these few shortcomings the book is valuable for medical students and for the doctor who wants information in concise form.

Illustrations of Anatomy for Nurses.. By E. B. Jamieson, M.D. Looseleaf. Second edition. Paper. Price, $3. Pp. 72, with 64 plates. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1946.

This handbook for nurses includes a selection of plates from the author's larger work "Illustrations of Regional Anatomy." It is printed on heavy plate paper and spirally bound to open out flat. Although a few slight modifications have been made in the color printing, the full page plates are the same as in the larger work from which they are taken. The book, which is really a hand atlas, is intended for nurses undergoing instruction in anatomy and as a supplement to whatever textbook is used. The plates are unusually clear owing to their somewhat diagrammatic character and to the extensive use of color to differentiate structures and parts. In fact, one could wish that slightly less color had been used or at least that it had been more restrained. Despite the somewhat violent color, the illustrations are skilfully designed and possess a high teaching value. Labeling occasionally departs from commonly used American terminology but is on the whole clear and complete. Nurses will find this striking little volume a valuable quick reference and a worthy addition to their library.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

IMMUNOLOGIC TESTS IN UNDULANT FEVER

To the Editor:—What is the percentage of positive agglutination tests and positive intradermal brucellin tests in proved cases of undulant fever. Also, is there an overlapping of positive tests in these cases?

M.D., Pennsylvania.

Answer.—Owing to uncontrollable variability in the disease itself and in laboratory diagnostic methods, the question cannot be answered satisfactorily by a simple citation of published data without considerable qualification.

Lack of a standard antigen for the agglutination test and a standardized technic for its performance introduces errors of considerable size in the determination of the frequency of positive reactions in proved cases of brucellosis. For this reason alone the data in published series are variable. Serums from certain culturally proved infections, estimated from 4 to 10 per cent in acute brucellosis, will fail to agglutinate many different strains, even the one recovered by culture. The agglutination test is more frequently positive in acute than in proved chronic brucellosis. Complete agreement is absent concerning the agglutinin titer level at which significance, or positivity, begins and from below which this is absent.

With these limitations on accuracy in mind, the cumulative totals from published figures on the frequency of "positive" agglutination tests vary from 75 to 95 per cent for acute and 5 to 50 per cent for chronic brucellosis.

With respect to "brucellergen" (brucella protein nucleate) (not brucellin) as the agent for intradermal testing, the producer states that about 5 per cent of those actively infected will not react to it, and that the majority of such persons also fail to show serum agglutinins. The cumulative results of various published experiences with this substance indicate that from 5 to 8 per cent of cases of proved brucella infection fail to react positively, and that this may or may not be correlated with absent agglutinins.

GALACTORRHEA

To the Editor:—A housewife aged 33 has had galactorrhea for the past six months. Oral atropine to the limit of tolerance has not checked it appreciably. Estrogen in oil temporarily decreased the flow following administration of 20,000 units twice weekly. When this dosage was reduced to once a week galactorrhea reappeared. This woman has suffered from a syndrome which fits exactly the functional hypoglycemia described by Conn (Conn, J. W.: The Diagnosis and Management of Spontaneous Hypoglycemia, J. A. M. A. 134: 130 [May 10] 1947). Apparently this is controlled by a high protein, low carbohydrate diet. Although her gallbladder was removed three years ago she has gaseous distress, bloating and burning sensation following the ingestion of food. These symptoms are relieved by aluminum hydroxide gel ("creamalin" N.N.R.) taken after meals. Three months ago fluoroscopic and radiographic examination of the upper part of the intestinal tract revealed no abnormality. Interesting features of the physical examination are (1) unusually short, but not tapering fingers; (2) excessive hirsutism of the forearms, legs, axillas, linea alba and areolae of the breasts and (3) blood pressure 120 systolic and 70 diastolic and 134 systolic and 90 diastolic on separate occasions. Her last of two pregnancies occurred one year ago. What causes the galactorrhea? What can be done to obtain permanent relief?

M.D., Colorado.

Answer.—Galactorrhea is rare. Stander (Stander, H. J.: Textbook of Obstetrics Designed for the Use of Students and Practitioners, New York, D. Appleton-Century Company, Inc., 1945) and DeLee and Greenhill (DeLee, J. B., and Greenhill, J. P.: Principles and Practice of Obstetrics, ed. 9, Philadelphia, W. B. Saunders Company, 1947) have stated that the condition is "intractable." Its cause has not been determined. In view of the latest information on the sources of lactation one must consider the possibility of some abnormal endocrinal function or tumor, particularly of the pituitary gland but less likely of the thyroid or the ovaries. Both authorities agree that the practical therapy of compression of breasts by tight binders is worthy of thorough trial. Greenhill suggests the use of diethylstilbestrol and androgens. Since this patient has excessive hirsutism, androgens should be avoided. If the simple measures of tight binder and breast support fail, then a thorough study of the endocrinal systems should be made. Special attention should be directed to the pituitary gland for evidence of tumor.

POSSIBLE TABES DORSALIS

To the Editor:—A man aged 61 has a negative serologic reaction to the Wassermann test, gastric and rectal crises and Charcot joint (neurogenic arthropathy) which is moderately progressive. He has no evidence of dementia paralytica. His mental and emotional condition is not affected. He has reflex rigidity of the pupils and absent knee jerks. The patient had a primary chancre at 19 years of age. He refuses to have a spinal fluid test performed. Please outline treatment. Should examination of the spinal fluid be insisted on? No accurate record of previous treatment is available.

M.D., Illinois.

Answer.—The patient described cannot be intelligently treated without examination of the spinal fluid, including a cell count, quantitative protein estimation, quantitative complement fixation test (not flocculation) and colloidal gold test. Assuming the patient's general physical condition to be satisfactory without serious complicating diseases, the best form of treatment for tabes dorsalis with gastric crises and a neurogenic arthropathy is fever therapy with induced tertian malaria infection combined with simultaneous administration of penicillin, the latter in a total dosage of 6,000,000 to 10,000,000 units. This treatment offers about a 50 per cent chance of relief from the gastric crises and some prospect that further degeneration of the affected joints may be interrupted. Six to twelve months' observation following treatment is necessary to determine its effectiveness. If ineffectual, certain further suggestions might be offered. The treatment of tabes dorsalis is a highly individualized problem. The management of the Charcot joint is largely orthopedic.

LIVER EXTRACT IN PERNICIOUS ANEMIA

To the Editor:—A patient with pernicious anemia, 72 years of age, has complete loss of vibratory perception, as tested with a tuning fork and loss of proprioceptive sense in the lower extremities. She was not receiving liver therapy at the onset of these symptoms. Is there hope of producing sufficient improvement to enable the patient to walk again? Would 30 units of liver extract weekly constitute an adequate dosage? How long after initiation of treatment could one expect improvement?

Clifford W. Atherton, M.D., Fairview, Ill.

Answer.—Patients with pernicious anemia, bedridden because of neural involvement, often show striking improvement with liver therapy. Not uncommonly such patients walk again and carry on their usual activities. The neurologic response, which is not always predictable, will depend on the duration and degree of involvement. Thirty units of liver extract weekly should be adequate during the early months of treatment. Later, this dose can be given every two to three weeks.

Improvement in cord symptoms and signs may be noted within a few weeks but may not become apparent for six months or longer.

PROSTHESIS FOR NASAL CANCER

To the Editor:—A patient who will require a plastic prosthesis following radical extirpation of an extensive basal cell cancer of the nose refuses operation unless I can arrange for a prosthesis. Where can this be obtained. She has received roentgen therapy from other physicians without permanent improvement.

M.D., Ohio.

Answer.—A plastic prosthesis is made from an impression of the nose using plaster of paris. If extensive operation is contemplated it is not worth while to take the impression in advance since the contour of the adjacent cheek and lip might change from postoperative contraction of the scar. The impression should not be taken until healing is complete, possibly six to twelve months postoperatively.

Properly constructed and hand tinted, a prosthesis will resemble the normal nose at close inspection. The ready-made papier-mâché type may be employed temporarily to cover the operative field while healing occurs. These are probably not more conspicuous than an adhesive dressing. Such a prosthesis may still be obtainable at one of the regular instrument houses.

IMMUNIZATION FOR TROPICS

To the Editor:—Occasionally during the fall or winter patients go to Mexico for a vacation. What immunizations are advisable before they make this trip?

M.D., Colorado.

Answer.—Vaccination against smallpox and also for the prevention of typhoid are the most important. Recently it has been reported that evidence of a successful vaccination against smallpox is necessary before entry to Mexico is permitted.

Malaria is another disease which should receive consideration; therefore it might be well to take prophylactic doses of quinine or quinacrine, if the locality which is to be visited is known to be a malarial district.

PARALYSIS FOLLOWING CEREBRAL HEMORRHAGE

To the Editor:—The blood pressure of a woman patient aged 56 is 155 systolic and 90 diastolic; previously it was 190 systolic. She had paralysis of the eye on the same side as paralysis of her legs and arms. She can now move the arm and can walk, but there remains a partial deadening of sensation, with weakness of the affected side. She can tell when the affected side is touched, but the sense of incomplete feeling is annoying. Is there any treatment?

R. W. Hartwell, M.D., Beaumont, Calif.

ANSWER.—Although the history is insufficient to make an exact diagnosis, there is presumptive evidence that this patient had a cerebral thrombosis in the internal capsule and adjacent areas of her brain on the side opposite to the paralysis. The weakness is due to partial interference with the motor pathways, and her complaint of disturbed sensation probably indicates that the thalamus was also affected. The thalamus is the central site of sensation in the brain and acts as a substation for sensory impulses on their way from the periphery to the cortex. The thalamic syndrome is often accompanied by severer symptoms than those described. Having partial deadening of sensation is a minor annoyance when compared with intense paresthesia or loss of position sense. If the initial onset occurred more than three or four months prior to the description of her symptoms, it is unlikely that further recovery will take place and no known form of medication will modify the course of the disease favorably. Occasionally, phenobarbital given in doses of 15 mg. (¼ grain) aids in stabilizing abnormal sensations during the early period of convalescence.

USE OF PERTUSSIS VACCINE

To the Editor:—1. Has a young unimmunized patient recently exposed to pertussis any chance to avoid the disease? 2. Will pertussis vaccine minimize symptoms of the disease once early symptoms have developed? 3. After whoop develops? 4. In a child who has completed a standard pertussis immunization one month to several years prior to exposure, would (treatment with pertussis vaccine) (*a*) before any cough, (*b*) after coughing but before whooping or (*c*) after whooping has begun have any value?

M.D., Iowa.

ANSWER.—Under the circumstances outlined in question 1, it is doubtful that any preparation injected into the exposed susceptible subject will produce *active* immunity rapidly enough to prevent an attack.

The answer is definitely "no" to questions 2 and 3. A much more rational procedure would be to give a dose of hyperimmune lyophiled human serum, such as that prepared by the Philadelphia Serum Exchange. If exposure is repeated, a second injection of this human serum can safely be given ten days to two weeks later. This *passive* immunity gives fairly good protection for two or three weeks. It should, of course, be followed by active immunization by vaccine of the Sauer type, either plain or combined with diphtheria toxoid in the alum-precipitated preparation.

In answer to question 4, a booster injection of pertussis vaccine in a child immunized some years previously is of definite value if given prior to the development of any symptoms. If given after any cough has begun, its value is questionable.

HORMONES AND MAMMARY HYPOPLASIA

To the Editor:—What information is available concerning the value of estrogenic hormone in ointment for mammary hypoplasia, used externally over the glands? Please give the names of several commercial products that have proved useful in this condition.

Cyrus H. Stoner, M.D., Atlanta, Ga.

ANSWER.—Estrogens are absorbed through the skin from ointments applied topically, but their use as described is not acceptable. This method of administration is wasteful.

The action of hormones absorbed through the skin is a complex one and has effects throughout the body.

Estrogens applied topically to the breasts may produce hyperpigmentation of the nipples and aereolae. This effect may follow estrogenic therapy by other routes as well (Davis, M. E.; Boynton, M. W.; Ferguson, J. H., and Rothman, S.: Studies on Pigmentation of Endocrine Origin, *J. Clin. Endocrinol.* **5**:138-146 [March] 1945).

At present there is no more justification for the use of hormonal therapy for the specific purpose of developing hypoplastic breasts than for similar attempts specifically to influence body height or weight or the size of the genitals.

The complex effects of hormones must always be kept in mind, and in contemplating their use the body must be thought of in terms of the whole rather than in terms of an organ or part.

SECONDARY ANEMIA FROM WELDING FUMES

To the Editor:—Do welding fumes from galvanized iron, stainless steel, copper, nickel and black iron if inhaled cause mild secondary anemias?

Raymond J. Millemann, Long Island, N. Y.

ANSWER.—Exposure to the substances mentioned does not favor the occurrence of secondary anemia. On occasion, lead may be present in traces as an unknown accidental constituent particularly if the metals are reclaimed lots. Under this circumstance, sufficient intake might cause an anemia from lead poisoning. If arc welding is involved and if coated welding rods are employed, coating components may induce anemia. If carbon monoxide is generated, which is unlikely, long exposure may produce a polycythemia. Notwithstanding all that precedes, this type of work under unfavorable conditions is sometimes associated with impairment of health for which diagnosis is difficult. Metal fumes, and notably the fumes of zinc, act as incentives to alcoholism and may produce a distaste for food. A mild secondary anemia may appear without specific occupational cause.

PREVENTION OF MOLD GROWTH ON BOOKS

To the Editor:—The Journal of Nov. 9, 1946 contains a query and answer concerning the removal of must odor from books. The reply states that there is no satisfactory way of inhibiting mold growth in a humid atmosphere. At the request of the Book Collectors' Society of Australia, S. L. Larnach and I published a paper on this subject in the *Laboratory Journal of Australia* in August 1945. Many experiments have shown that there is no growth of fungi when the relative humidity is below 75 per cent. It was therefore decided to investigate the problem of maintaining the humidity within a bookcase below 75 per cent, either continuously or during very humid weeks. As a result of our studies it was recommended that two fairly open meshed bags containing a half pound of silica gel be hung on each book shelf during periods of high humidity. When not in use the silica gel should be kept in an airtight container. After the gel is spent, it can be reactivated by heating it for some time in order to drive out the water vapor.

B. D. Wyke, M.B.B.S., Sydney, Australia.

Research Fellow in Neurology and Neurological Surgery, University of Sydney.

[The *Bulletin of the U. S. Army Medical Department*, May 1945, page 28, published the following item on this subject, which was reprinted from *Science* of March 2, 1945: In warm climates following a long rainy spell, book bindings frequently support a heavy growth of mold, which, if unchecked, will disfigure the books. While mere dusting removes the superficial growth, it does not disturb the mold growing in the paste of the bindings. Several years ago, following a wet season, the Duke Hospital Library had an epidemic of mold in bound journals which stood near an underground ventilator drawing air from an open areaway. Duncan C. Hetherington of the Department of Anatomy, Duke University School of Medicine, was called on for suggestions to remedy the situation. The vent was closed and the following solution was wiped over the molded bindings: thymol crystals 10 Gm., mercury bichloride 4 Gm., ether 200 cc., benzene 400 cc.

The treated volumes have never since shown any tendency to mold, and any other outbreaks of mold have been similarly and effectively treated. The solution is poisonous and inflammable and should be used carefully in an open room or outdoors with no source of fire nearby. It is best applied with a cotton sponge tied to a suitable applicator or held by forceps, so that none of it gets on the fingers. The solution penetrates the bindings readily and dries rapidly, leaving no precipitate. One application is usually sufficient, and the books may be returned at once to their places. It is wise to test first one corner of the bindings before using the solution, to discover whether the dye will run or change in any way. In our experience it has not altered the appearance of the goods nor affected the letter stampings. The solution may also be safely used on record album backs, leather boxes and luggage, but it should never be used on any wearing apparel.]—*Ed.*

PUBLIC HEALTH

To the Editor:—Several physicians have asked me to write objection to the definition of "public health" which appears in an answer to Dr. Gleeten's query about state medicine on page 544 of The Journal of Oct. 25, 1947, and which reads as follows:

> "Public health is a form of socialized medicine concerned with special groups and special activities for the protection of the health of the people as a whole."

All of us engaged in teaching the sciences of preventive medicine and their application through tax-supported services resent the inclusion of public health as a form of socialized medicine. It is no more socialized medicine than the public school is socialized education, or the police or fire department of a city a socialized activity.

Public health services consist of the application of the sciences of preventive medicine through government or with its authorization for social or community ends or benefit. Public health departments, local and state, are integral parts of government, based on the democratic organization of society by majority rule through the power of the suffrage and authority to appropriate tax moneys. This is not socialization of medicine nor should it be referred to as a form of socialized medicine.

Please take my gentle objection to heart and do not permit any one to put the label of socialized medicine on public health through the pages of The Journal.

Haven Emerson, M.D., New York.

NOTE.—"Public health" is, of course, "social" medicine.—ED.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 136, No. 10 CHICAGO, ILLINOIS March 6, 1948

Copyright, 1948, by American Medical Association

EMERGENCY TREATMENT OF APOPLEXY

N. C. GILBERT, M.D.,
and
GEZA de TAKATS, M.D.
Chicago

Acute occlusions occurring in the peripheral vascular tree produce neurovascular phenomena which have been successfully treated for several years in our clinic by administration of antispasmodic drugs, by block of the corresponding sympathetic ganglionated chain or by embolectomy.[1] This knowledge has not been generally applied to cerebral circulation, mainly because the nervous control of the cerebral vessels has been authoritatively questioned. While the vessels of the cerebral cortex react to mechanical, thermal, chemical and electric stimuli,[2] and while pial arteries have been seen to go into spasm on being stretched [3] or on increase of blood pressure,[4] little evidence has been forthcoming from these sources that any nervous control is clinically significant. In fact, the consensus as summarized by Forbes and Cobb in a symposium on cerebral circulation [5] stressed that cerebral circulation is remarkably stable, that fright, anger or other emotions do not change the vascular caliber, that while the existence of vasomotor nerves cannot be denied, their constrictor activity in the vessels of the pia is about one-tenth that in the skin. It has been concluded by this group of workers that the neurovascular mechanism of the brain is weak and that it is not likely to participate in any process resulting in permanent damage of nervous tissue.

The factors determining the size of cerebral vessels have been listed by Aring [6] as (1) the vasodilatation, brought about by carbon dioxide, by nitrites, by nicotinic acid, (2) changes of blood pressure, (3) local activity of a group of neurons demanding more blood for their metabolism and (4) changes in the degree to which the venocapillary bed resists blood flow, as in extremes of hydration and dehydration. Thus edema tends to narrow capillaries and vessels, whereas dehydration encourages their dilatation. Systemic arterial and intracranial venous pressures are of more importance than the aforementioned factors in the regulation of the amount of blood that normally flows to the brain.

All these factors are recognized as acting on the peripheral circulation, but it is clear that while the extremities subserve the regulation of heat and have a highly fluctuating vasomotor tonus, the cerebral vessels do not engage in this function, and many safeguards, predominantly the carotid sinus and the aortic depressor mechanisms, are developed to maintain as even a total blood flow as possible.[7]

In seeming contrast to the findings of physiologists and laboratory experimentalists, clinicians have postulated for many years the occurrence of fleeting and reversible vascular phenomena, which were difficult to explain on any but a vasomotor basis. The rapid improvement after cerebrovascular accidents or trauma of the head, the fleeting motor and sensory phenomena with complete clinical restitution, the vasoconstrictor phase of migraine followed by vasodilatation and headache have always been regarded as due to neurovascular changes. In fact, apoplexy has been regarded as an angiospastic insult.[8] Recently the form of hyperemia described by Ricker [9] and applied to the pathology of head trauma by him as early as 1919 has received confirmation and elaboration by Chase,[10] by Evans and Scheinker [11] and by Aring.[6]

Since in the mind of the clinician vasospastic phenomena usually mean simple vasoconstriction, it might be well to summarize Ricker's original conception, since it is applicable to so many fields of vascular pathology and because until quite lately he has not received the credit which he deserves. Ricker stated clearly that a spasm of contractile elements that has lasted for some time or is of unusual intensity may lead to dilatation and stasis of the venocapillary bed, with diapedesis of plasma or of cellular elements, on one hand, and to persistent constriction of the arteriolar bed, on the other. Ricker and his school examined a great many organs that were at rest and in activity by transillumination and the use of the capillary microscope. They showed that the hyperemia with stasis was not the reactive hyperemia of Bier, with vasodilatation of all terminal vascular segments and with increase of the rapidity of blood flow. The hyperemia in question, which Ricker named "peristatic," results from venocapillary dilatation with arteriolar constriction, the capillary bed being paralyzed, not responsive to direct stimuli, and the blood

---

From the departments of medicine and surgery, St. Luke's Hospital.

[1] de Takats, G.: The Use of Papaverin in Acute Arterial Occlusions, J. A. M. A. **106**: 1003 (March 21) 1936; The Acute Vascular Occlusions of the Extremities, Am. J. Surg. **33**: 60, 1936; The Surgical Treatment of Acute Vascular Occlusions, S. Clin. North America **22**: 199, 1942.

[2] Florey, H.: Microscopical Observations on the Circulation of the Blood in the Cerebral Cortex, Brain **48**: 43, 1925.

[3] Echlin, F. A.: Vasospasm and Focal Ischemia, Arch. Neurol. & Psychiat. **47**: 27 (Jan.) 1942.

[4] Fog, M.: Cerebral Circulation: The Reaction of the Pial Arteries to a Fall in Blood Pressure, Arch. Neurol. & Psychiat. **37**: 351 (Feb.) 1937.

[5] Forbes, H. S., and Cobb, S.: Vasomotor Control of Cerebral Vessels, A. Research Nerv. & Ment. Dis., Proc. (1937) **18**: 201, 1938.

[6] Aring, L. D.: Vascular Diseases of the Nervous System, Brain **68**: 23, 1945.

[7] Weiss, S.: The Regulation and Disturbance of Cerebral Circulation Through Extracerebral Mechanisms, A. Research Nerv. & Ment. Dis., Proc. (1937) **18**: 571, 1938.

[8] Westphal, K., and Baer, R.: Ueber die Entstehung des Schlaganfalles, Deutsches Arch. f. klin. Med. **151**: 1, 1926.

[9] Ricker, G.: Die Entstehu[illegible] nach Hirnerschutterung im [illegible] Virchows. Arch. f. path. Anat. [illegible]

[10] Chase, W. H.: Cerebral Thrombosis, Hemorrhage and Embolism, Pathological Principles, A. Research Nerv. & Ment. Dis., Proc. (1937) **18**: 365, 1938.

[11] Evans, J. P., and Scheinker, T. M.: Histologic Changes Following Head Trauma, J. Neurosurg. **1**: 306, 1944.

leaking out of the dilated segments by diapedesis. Thus his conception was the morphologic forerunner of the classic experiments of Landis and co-workers[12] concerning the anoxic permeability of the capillaries, of the recent studies of Knisely and Block[13] of the "sludge" effects in experimental malaria and of the studies of Lange and Boyd[14] on frostbite.

Such venocapillary paralysis is certainly not uncommon in peripheral vascular disturbances and usually indicates severe terminal vascular occlusion. Diapedesis of red cells surrounding segmental areas of venous stasis is seen in the extremities as a forerunner of gangrene. Such phenomena of stasis and diapedesis occurring in the brain of the experimental animal have been recorded by Villaret and Cachera,[15] who observed the vessels of the pia through a window in the skull after embolic occlusion.

It is for the reasons cited that a short communication of Leriche and Fontaine,[16] made in 1936, aroused so little interest. These authors presented 2 cases of postoperative hemiplegia, in which an infiltration of the stellate ganglion of the affected side resulted in a striking regression of symptoms. They felt that the block influenced the zone of vasoconstriction around an ischemic or a hemorrhagic area and that the regression of edema beneficially influenced the residual symptoms. Stimulated by this report, Mackey and Scott[17] treated 19 patients for acute cerebrovascular accidents, 9 of whom derived definite benefit. They reported that cerebral hemorrhage does not respond well, particularly in the aged, that patients affected by cerebral thrombosis should fare better, depending on the amount of cerebral arteriosclerosis, and that cerebral embolism occurring in the young is the ideal case for this treatment. While, obviously, some patients with apoplexy improve spontaneously during the first few hours, they do not do this within the first few minutes. This was their criterion for a therapeutic effect of the block.

Our interest in the nervous control of the cerebral circulation stems from several sources. In doing cervical sympathectomies for retinitis pigmentosa, Gifford and one of us (G. de T.)[18] could find no definite improvement in the patients referred for operation, but immediately after the operation there was marked retinal hyperemia. Since that early report a number of other patients have been operated on by one of us (G. de T.), and when one of them was tested preoperatively with stellate block, a striking improvement in visual acuity was encountered.[19] That vascular reflexes are important in insuring adequate circulation in the brain, especially in the erect position, was observed by Capps and one of us (G. de T.).[20] Two cases were reported, in which bilateral denervation of the carotid sinus resulted in marked postural hypotension seventeen months and eight and a half months postoperatively, together with symptoms of cerebral anoxia. It seemed as if the weakening of this mechanism under anoxia precipitated loss of consciousness.

While an opportunity to view the pial vessels through the opening produced by raising a bone flap during the course of a stellate block is not likely to occur very often,[21] Villaret and Cachera,[15] in their classic set of experiments, photographed vasoconstriction of cortical vessels after experimental embolism, which could be abolished by block of the cervical sympathetic nerves. They also demonstrated late circulatory disturbances in the presence of cerebral infarction and demonstrated anastomosis of cortical vessels in and around the cerebral infarcts, disproving the concept that these are end arteries.

All the foregoing considerations led us to adopt a more active method of treating patients who had undergone cerebrovascular accidents. We propose to discuss the material studied, the technics employed and the results obtained. In this country Volpitto and Risteen[21] noted good results from a stellate block on cerebral thrombosis, but warned against its being used in the presence of hemorrhage.

MATERIAL STUDIED

One hundred and twenty-one patients were used for the basic study. Apoplexy was differentiated as cerebral hemorrhage, thrombosis and embolism, our criteria being based on the analysis of Aring and Merritt.[22] While they stated that differentiation of these lesions should be possible in nearly 100 per cent of cases, this ideal may not always be reached in a general hospital, where such patients are not all admitted to the same service and their study and treatment are not standardized. We apply our criteria for the diagnosis of the three variants of the apoplectic insult as follows:

Cerebral Embolism.—This diagnosis is made when a patient showing a sudden cerebrovascular insult has an obvious cardiac lesion for the source of the embolus, or has had previous embolic episodes involving the brain or other part of the body, and has clear spinal fluid with no elevation of pressure. The age of the patient is usually lower than that of a patient affected by thrombosis or by hemorrhage, because in many instances the embolus originates from a rheumatic heart. Nevertheless, this is somewhat offset by the fact that there is a group of patients who show emboli from myocardial infarcts[6] or from sclerotic plaques or aneurysms. This is also true of the blood pressure readings, which are said to be the lowest in this of all three forms, but there is no reason why hypertensive cardiovascular disease could not be complicated by cerebral embolism. Also, the blood pressure recorded in the history may reflect a state of peripheral failure, a response to intracerebral hemorrhage or a reactive pressor response to increased intracranial pressure. For this reason, the help obtained from the patient's age and blood pressure in differentiating the various forms of apoplexy should not be valued too highly. In the group of 15 patients classified as suffering from cerebral embolism the ages varied from 18 to 60, the average age being 53 years. Their blood pressure (measured in millimeters of mercury) fluctuated between 110 systolic and 80 diastolic and 210 systolic and 106 diastolic, with an average of 143 systolic and 85 diastolic. Their spinal fluid was clear;

---

[12] Landis, E. M.; Jonas, L.; Angevine, M., and Erb, W.: The Passage of Fluid and Protein Through the Human Capillary Wall During Venous Congestion, J. Clin. Investigation **11**:717, 1932.

[13] Knisely, M. M., and Block, E. H.: Intravascular Agglutination of Erythrocytes in Disease, Proc. Inst. Med. Chicago **15**:281, 1945.

[14] Lange, K., and Boyd, L. J.: The Clinical Pathology of Experimental Frost Bite and the Prevention of Subsequent Gangrene, Surg., Gynec. & Obst. **80**:346, 1945.

[15] Villaret, M., and Cachera, R.: Les embolies cerebrales, Paris, Masson & Cie, 1939.

[16] Leriche, R., and Fontaine, R.: De l'infiltration stellaire dans les embolies cerebrales, dans les spasmes vasculaires postoperatoires de l'encephale et chez les hemiplegiques, Rev. de chir. **55**:755, 1936.

[17] Mackey, W. A., and Scott, L. D. W.: Treatment of Apoplexy by Infiltration of the Stellate Ganglion with Novocain, Brit. M. J. **2**:1, 1938.

[18] de Takats, G., and Gifford, S. R.: Cervical Sympathectomy in Retinitis Pigmentosa, Arch. Ophth. **14**:441 (Sept.) 1936.

[19] Gamble, R. H., and de Takats, G.: Unpublished data.

[20] Capps, R. B., and de Takats, G.: The Late Effects of Carotid Sinus Denervation in Man: Report of Two Cases with Studies of the Vascular Reflexes, J. Clin. Investigation **17**:385, 1938.

[21] Volpitto, P. P., and Risteen, W. A.: The Use of Stellate Ganglion Block in Cerebral Vascular Occlusions, Anesthesiology **4**:403, 1943.

[22] Aring, C. D., and Merritt, H. H.: Differential Diagnosis Between Cerebral Hemorrhage and Cerebral Thrombosis: A Clinical and Pathological Study of Two Hundred and Forty-Five Cases, Arch. Int. Med. **56**:435 (Sept.) 1935.

the pressure was normal. Seven patients belonged to the hypertensive-arteriosclerotic group and 8 to the rheumatic group (table 1).

In peripheral arterial embolism, the chances for a survival of the limb, with or without embolectomy, are better in the rheumatic group. Such a situation seems to exist here because, of the 6 patients who had cerebral embolism based on rheumatic heart disease, only 1 died, a 40 year old man with heart failure; whereas, of the remaining 9 who had cerebral embolism with postcoronary complications and hypertensive cardiovascular disease, 5 died, and while this has no statistical significance in such a small series, it is obvious that the prognosis as to life would be better in the rheumatic group.

Cerebral Thrombosis.—A more appropriate designation for this condition would be cerebral softening, since, as Aring[9] pointed out, the postmortem examination reveals, apart from stenosis and hyalinization of arterioles, areas of malacia or necrosis, but seldom actual thrombosis. In this group of 53 patients, 9 died in the attack, and on 4 of these autopsy was performed. Of the 4, only 1 had thrombosis of the middle cerebral artery. One died of coronary thrombosis with pulmonary embolism and many scattered areas of softening; another had stenosis of the middle cerebral artery with malacia of the striate bodies and of the white matter of the right hemisphere, and still another died of coronary thrombosis and terminal bronchopneumonia. In these patients as well as in the others who died, in whose cases autopsy observations are not available, a fall in blood pressure and the anoxia of the inevitable bronchopneumonia of the unconscious patient seem to transform the silent or latent cerebral softening into the clinical entity of "thrombosis" or even into death.

To make a diagnosis of encephalomalacia—not embolism and not hemorrhage—one postulates a patient afflicted with cardiovascular-renal disease, moderate hypertension and an onset which is gradual and does not deepen. While loss of consciousness is present in approximately one half of the cases, it does not persist for many days. Increased intracranial pressure is not observed, the spinal fluid is clear, and if the pressure is elevated, this is part of the hypertensive encephalopathy; papilledema and engorgement of retinal veins are absent. The condition presented by this large group is really diagnosed, then, by eliminating embolism and hemorrhage from the causes of the stroke. The average age of this group was 60.8 years; a study of the patients below 50 years of age indicates that, of the 11 in this group, 2 died, one a 42 year old woman, with severe diabetes and hypertension, and another a 48 year old man with a blood pressure of only 120 mm. of mercury systolic and 70 diastolic. This pressure was undoubtedly a pressure in collapse. The figure for the average blood pressure of this group need not be emphasized too much, since a study of the charts reveals that the component values were determined at various stages of the attack and therefore seem meaningless. It is interesting to note, however, that the postoperative or the postcoronary hemiplegias observed were accompanied by a prolonged and rapid fall in pressure, and so were those occurring during sleep.

The onset was noted to be sudden in 25 and gradual in 28 patients; if the patient did not die of the attack or of complicating bronchopneumonia, recovery was slow, improvement being noted in 20 and no improvement in another 20 patients. Fatalities were recorded as occurring in 13 patients (24.5 per cent), all of them dying within the period extending fom the fifth to the twenty-eighth day, none earlier. The spinal fluid was clear, and only 2 patients showed a pressure of more than 200 mm. of water (table 1).

Cerebral Hemorrhage.—This form of apoplexy was diagnosed in 53 patients, 41 of whom died within the next few hours or days—a mortality of 77 per cent. The average age of this group was 58.9 years, with individual variations from 41 to 80 years. There were 33 men and 20 women. The average blood pressure was 213 mm. of mercury systolic and 120 diastolic, with extremes of 300 systolic and 120 diastolic and 120 systolic and 70 diastolic. Again one must emphasize the point that the vascular insult itself may modify the blood pressure readings, but the tendency for the highest pressure among the three varieties of apoplexies to occur in cases of hemorrhage is well enough defined. Only in a few patients was the onset gradual, but even in these deepening coma was observed. The number exhibiting a sudden fulminating onset was 49 of 53 (92 per cent). The spinal fluid was clear, with normal pressure in 30 per cent of the cases, but unfortunately spinal puncture was done in only one third of the cases in this series. Of the patients whose spinal fluid was examined, over two thirds had bloody spinal fluid and three fourths had bloody spinal fluid or spinal fluid under increased pressure (over 160 mm. of water). In massive hemorrhage, the outlook for improvement was poor, and only 9 per cent showed improvement; 14 per cent were unimproved and 77 per cent (41 patients) died. Only in 16 cases was permission to perform autopsy obtained. In our hospital, in which the rate of permission has averaged 75 per cent in the last few years, this low percentage is probably due to the difficulties in obtaining permits in cases in which the patient arrives in a comatose, moribund state and dies within a few hours. Certainly in the cases in which permission has been obtained, valuable information has been collected regarding the possibility of more active treatment of patients with acute massive cerebral hemorrhage, as well as the high incidence of pneumonic complications in the patients who survive the first few days (table 1).

From a diagnostic standpoint, the sudden onset, the stiff neck, the high white blood cell count, the bloody spinal fluid under increased pressure and the deepening coma are all suggestive of hemorrhage.

Table 1.—*Apoplexies*

	Embolism	Thrombosis	Hemorrhage
Cases....................	15	53	53
Average age.............	53.1 (18-80)	60.9 (40-82)	58.9 (41-81)
Males....................	12	31	33
Females..................	3	22	20
Average blood pressure..	143/85 (210/100-110/80)	166/97 (205/140-120/70)	213/120 (300/150-120/70)
Onset....................	Sudden	Sudden 25 (47%) Gradual 28 (53%)	Sudden 49 (92%) Gradual 4 (8%)
Spinal fluid..............	Clear	100%	6
Spinal fluid pressure.....	Normal	Normal 90%	Normal 8 Increased 11
Patients improved.......	6 (40%)	20 (38%)	
Patients unimproved....	3 (20%)	20 (38%)	
Patients who died.......	6 (40%)	13 (24%)	

A summary of the observations made on 121 patients with apoplexy admitted to St. Luke's Hospital between the years 1940 and 1946 is given in table 2. We have compiled this summary to give us a base to start from and to see whether more active therapy could not be instituted with benefit.

THE USE OF CERVICAL SYMPATHETIC BLOCK IN APOPLEXY

During the course of the past few years we have made fifty-seven cervical sympathetic blocks in 25 patients not included in the first two tables. Most patients received only one injection, but 5 patients had three, 3 patients five and 2 patients six injections during the course of their convalescence (table 3). Our indications have gradually crystallized with increasing experience. It became obvious, as already emphasized previously,[21] that cerebral hemorrhage offers little chance of improvement. In the group of 25 patients, 3 were considered to have cerebral hemorrhage; in 2 instances the diagnosis was verified by autopsy, and in the third the condition was diagnosed as being such because of the sudden onset, the stiff neck, the bloody spinal fluid and the increased spinal fluid pressure. In this case the 75 year old patient died on the third day of admission with deepening coma and vomiting. Permission to perform autopsy was not obtained. However, immediately after induction of the block, active motion of the right arm returned and speech improved, the improvement lasting for four hours. The other 2 patients showed no change in their status after induction of block and died.

TABLE 2.—*Summary of Data on One Hundred and Twenty-One Patients Treated for Apoplexies*

Diagnosis	Patients	Average Blood Pressure, Mm. Hg	Sudden Onset, per Cent	Normal Spinal Fluid, per Cent	Improvement, per Cent	Mortality, per Cent
Embolism........	15	143/ 85	100	100	40	40
Hemorrhage......	53	213/120	92	30	9	77
Thrombosis (cerebral softening)...	53	166/ 97	47	90*	38	24

* The spinal fluid contained no blood but was under increased pressure, due to hypertension.

TABLE 3.—*Patients Treated for Apoplexies by Induction of Cervical Sympathetic Block*

Patient	Injections *
15................................	15 (1)
5................................	15 (3)
3................................	15 (5)
2................................	12 (6)
25................................	57

* The figures in parentheses indicate the number of injections received by the individual patient.

Of the 12 patients in whom cerebral thrombosis or softening was diagnosed, 3 died, one on the seventeenth day, of pneumonia, one on the twelfth day, of pneumonia, one on the fifth day, of coronary thrombosis. Improvement after induction of stellate block was noted in 8 patients of this group and the criteria of improvement will be listed presently. One patient showed no improvement.

Of 10 patients considered as having cerebral embolism, immediate improvement was noted in all, but this did not necessarily alter the course of their disease; one patient of this group died on the fifth day, at which time the right internal carotid and middle cerebral arteries were found to be occluded, and the occlusion had produced a large infarct in the right cerebral hemisphere; the origin of the embolus was in the right auricle.

TABLE 4.—*The Efficacy of Stellate Block as Used to Alleviate Apoplexies*

Diagnosis	Cases	Good Responses	Poor Results
Hemorrhage..................	3	1	Death in 3
Thrombosis..................	12	8	No improvement in 1 Death in 3
Embolism..................	10	10	Death in 1
Total..................	25	19	Death in 7 No improvement in 1

TABLE 5.—*Criteria of Improvement Following Stellate Block as Used in Alleviation of Apoplexies**

	Patients
Consciousness regained..................	5
Speech regained..................	5
Speech improved..................	10
Motor improvement..................	8
Flaccid paralysis abolished..................	5
No improvement..................	7

* Improvement must appear within ten minutes after the production of Horner's syndrome. Injections were done as soon as possible after admission.

It would seem, then, from the survey of this small group of cases, that embolism responds the best, thrombosis less well and hemorrhage the least (table 4). It became necessary to establish criteria of improvement, for which the house staff was instructed to look. Since spontaneous improvement is frequent, one can attribute any effect to the block only if it coincides with, or follows within five to ten minutes after, the appearance of Horner's syndrome. The criteria are listed in table 5. With few exceptions, the injections were made within the first few hours of the cardiovascular accident. In only 3 patients was the block of the stellate ganglion carried out several days or weeks later. In 1 patient, in whom an intermittent dysarthria resulted from apoplexy, a block was done to see whether the temporary improvement and deterioration of speech would not be influenced by sympathetic paralysis. This patient obtained no help. However, 2 other patients, both with paralysis of the third nerve, showed definite improvement of ocular muscle function when injections were done several days after the vascular accident.

The duration of improvement varied from a few hours to several days. Two patients died later in spite of showing a favorable response immediately after the injection. In patients who showed regression after temporary improvement, repeated injections were done; subsequent injections, however, produced hardly as marked improvement as the first one.

The most significant finding was the conversion of flaccid into spastic paralysis, since it offers proof that in the human brain affected by occlusion of a blood vessel the state of cerebral shock, "diaschisis," can be shortened so as to give way to a focal upper neuron lesion. The mechanism of cerebral shock is not clear, and hence the nature of its release is also only speculative. Obviously, any method which is capable of reducing the edema due to stasis, or improving the blood flow in parts of the brain not directly affected by the vascular insult should bring about better restitution and lessen the permanent cerebral damage.

AN OUTLINE OF THE TREATMENT

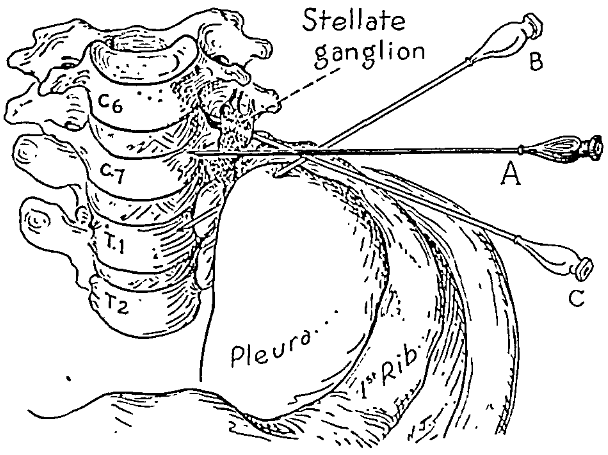
The earlier treatment can begin, the better are the chances for hastening the phase of restitution. The patient is given a brief cardiovascular and neurologic examination. The history is obtained from the relatives. The patient is immediately placed in an oxygen tent; this not only diminishes the anoxia but may indirectly aid the aortic depressor and carotid sinus reflexes. If signs of increased cerebrospinal pressure are dominant, a spinal tap is done and the spinal pressure measured. Frank blood speaks for cerebral or for subarachnoid hemorrhage, and block of the cervical sympathetic chain is not performed. Marked hypertension with signs of increased venous pressure in the neck requires venesection, which is done slowly, and not more than 300 cc. of blood is removed at one time. Unless coma is deepening and a terminal condition is obvious, and if massive hemorrhage can be reasonably excluded, a sympathetic block is performed, with the patient in bed, in the reclining or semisitting position.

For diagnostic and therapeutic purposes we have generally preferred the anterior approach to the sympathetic chain. The method used is as follows:

> The patient's neck is slightly hyperextended by a small pillow placed under the shoulder blade of the side of injection; the head is turned away from the site of injection. With an applicator dipped in a solution of iodine, a line is drawn from the mastoid process to the clavicle through the tips of the palpable transverse processes. By injection of a 1 per cent solution of *procaine hydrochloride* (without epinephrine) a dermal wheal is place over the tip of the seventh transverse process; then a 4 inch (9 cm.) 22 gage needle is inserted through this wheal. It must shortly make contact with the tip of the transverse process, which is quite superficial. Then the needle slides along the superior border of the transverse process until it contacts the body of the sixth cervical vertebra. Aspiration is now made for air bubbles, for blood, for spinal fluid, and if none of these is observed, 10 cc. of a 1 per cent solution of procaine hydrochloride is injected, aspirations being made repeatedly during this procedure.
>
> A successful block is followed within ten to fifteen minutes by Horner's syndrome, by dilatation of the conjunctival vessels, by dryness and increased warmth of the face and ear lobes of the side of injection and by rising temperature and dryness of the corresponding upper extremity.

This description represents an insignificant modification of Leriche's method.[23] The modification has been designed to make the method comparatively safe and simple in the hands of residents. There is no question that Leriche's original method and that of de Bakey and Ochsner[24] deposit the local anesthetic much closer to the stellate ganglion, and their approach is more accurate in experienced hands. In the hands of the occasional operator, doing a few blocks each month, the foregoing modification is safer, since it cannot possibly result in pneumothorax. That intravascular injections must be avoided is obvious; intraspinal injections can occur, and we know of two deaths due to this complication. Such an injection happens when the tip of the needle enters a subarachnoid projection along the cervical nerve root, even though the needle has not entered the intervetebral foramen. Since in our experience with residents, pneumothorax or actual massive collapse of the lung has occurred, we placed the injection one segment higher without influencing the efficiency of the block (figure). It must be emphasized that if the diagnostic or therapeutic block is made in cases of angina pectoris or of causalgic states of the upper extremities, a dorsal approach to the upper second to fourth sympathetic ganglions must be used. For our present purpose—in the hemiplegic patient—the cervical approach at the sixth to seventh cervical level is satisfactory.

If Horner's syndrome does not develop, the injection must be regarded as faulty and should be repeated. The injection is to be done on the side of the lesion, and the side is not immediately obvious when the patient is seen early; the patient may be quadriplegic or may have flaccid paralysis, but either a facial involvement or a beginning sensory change may point to the side of involvement. Dilatation of the pupil is more frequent on the contralateral side. Loss of pupillary reaction is more frequent in cases of hemorrhage.



Injecting the stellate ganglion by an anterior approach: *A*: Correct position of the needle, locating the lateral surface of the seventh cervical vertebra or the disk between the sixth and seventh vertebrae. Note that the direction of the needle is at right angles to the spinal column.

B: Often the needle is directed caudally for the search of the first rib, which is unnecessary. Puncture of the pleura and resulting pneumothorax, or puncture of the lung with hemoptysis or massive collapse of the lung, may follow.

C: The needle is directed cephalad and may pierce the dural covering of the roots or even enter the intervertebral foramen and puncture the cord.

The injections must be done only after adequate instruction and supervision by the resident staff.

If improvement is to follow cervical sympathetic block, it should be noticed within the next ten minutes; the improvement may then continue. Should a relapse occur, the patient must be given a second injection. We have not given the injections more often than once every twenty-four hours, but possibly they might be given even eight to twelve hours apart if improvement is followed by deterioration.

A total of fifty-seven injections have been made in the 25 patients. More than half of the patients received only one injection, owing to the fact that in our early experience we were not sufficiently aware of the importance of giving the patient further injections if the first seemed useful. Today it is customary to inject the cervical sympathetic chain daily until no further improvement is noted. It also seems that bilateral sympathetic block is more effective, at least in the animal experiment,[25] but no simultaneous injections have been made in this series.

---

[23] Leriche, R., and Fontaine, R.: L'anesthésie isolé du ganglion etoile: La technique, ses indications, ses resultats, Presse méd. **42**: 849, 1934.

[24] de Bakey, M., and Ochsner, A.: Treatment of Thrombophlebitis by Novocain Block of Sympathetics: Technique of Injection, Surgery **5**: 491-497, 1939.

COMMENT

In spite of the theoretic considerations which made it seem unlikely that the temporary elimination of vasomotor tonus of the cerebral vessels would effectively influence the derangement of cerebral circulation following apoplexy, our clinical observations leave no doubt that in properly selected cases, with injections being made at the earliest possible moment, an acceleration of the phase of restitution may be expected. By this we mean that after all cerebrovascular accidents there is present around the ischemic or hemorrhagic infarct a zone of stasis, vasoparalysis and exudation of plasma. This has been seen in the experimental animal through a window in the skull by Villaret and Cachera [15]; they demonstrated that a collateral network develops around and into the infarcted areas and that there are segmental spasms and dilatations of the nonobstructed vessels. They showed that these functional changes must be activated by an irritative sensory lesion of the obstructed vessels, since air embolism, while producing complete vascular block, never was accompanied by such phenomena. Their observations, however, relate to the vessels of the pia, which are known to have more vasomotor control than the intracerebral vessels.

A second observation, which indicates that widespread cerebral damage may occur at a great distance from the original lesion, can be found in the histologic studies of Evans and Scheinker,[11] who observed diffuse cerebral atrophy accompanying focal injuries in head trauma. They reported that the white matter stands the collateral edema and stasis much more poorly and that the hypoxia here is followed by diffuse gliosis. While recently there has been a tendency to minimize the importance of cerebral swelling in concussions, the accurate measurements of White, Brooks, Goldthwaite and Adams [26] showed that edema and congestion are present, fluid being extravasated through permeable anoxic capillary membranes.

The question then arises: Can sympathetic block relieve such stasis by (1) releasing the arteriolar spasm proximal to it, (2) by improving venous drainage and thereby decreasing intraventricular and intraspinal pressure or (3) by so affecting the extracerebral portions of the carotid arteries that more blood may be brought to the brain? Such studies are now under way.

On the basis of our conception, the following therapeutic measures seem indicated in acute cerebrovascular accidents: For patients with cerebral embolism, an oxygen tent, slowing of rapid fibrillation, stellate block and anticoagulants are ordered. "Dicumarol" may be administered for weeks and months according to a schedule discussed elsewhere.[27]

For patients with cerebral thrombosis, an oxygen tent, venesection in case of hypertension, stellate block and release of increased spinal fluid pressure are indicated.

For patients with cerebral hemorrhage, an oxygen tent, slow spinal drainage and neurosurgical consultation concerning possible evacuation of clots may be considered. No sympathetic block need be done.

In all three varieties of apoplexy, hypertonic sucrose solution or a concentrated solution of albumin with 5 to 7½ grains (0.3 to 0.5 Gm.) of aminophylline, given intravenously, should improve cerebral edema. There is some evidence that aminophylline lowers spinal fluid pressure,[28] and its use seems to us more rational than the extreme dehydration advocated for patients with cerebrovascular accidents or head trauma.

ADDITIONAL MEASURES

Pulmonary Ventilation.—An embarrassed cerebral circulation is greatly handicapped if the oxygen exchange of the lungs is diminished. It is not enough, however, to place the unconscious or slightly cyanotic patient in an oxygen tent and leave him in the half-sitting position. Mucus, bronchial secretion, collects in astonishing quantities in the tracheobronchial tree of the apoplectic patient, just as in head trauma. It is likely that just as in pulmonary embolism [29] and in reflex pulmonary atelectasis following trauma of the chest [30] this "wet lung" is the result of vagal stimulation, which here is of central origin. Since the majority of patients who survive the first forty-eight hours of the apoplectic insult die of pneumonia, postural drainage of the tracheobronchial tree is an important, though much neglected, measure for the unconscious patient. The patient is placed on his side rather than on his abdomen in the cardiovascular case, and the foot of the bed is slightly elevated. Mucus may be aspirated from the mouth and pharynx through a no. 14 French catheter. A metal airway may be inserted if necessary. Aminophylline and atropine may be used if secretion is excessive. It is astonishing how good postural drainage and some pharmacologic inhibition of bronchial obstruction and secretion may clear up neurologic signs due to anoxia and prevent the greatest single cause of mortality.

Nutrition.—If after twenty-four to forty-eight hours the patient is still unconscious, parenterally administered fluids are substituted by hourly feedings through a Levine tube, the patient's protein and vitamin requirements being kept in mind. Dehydration, practiced so extensively at one time in head injuries, need not be carried out, and a fluid intake of 2,000 to 3,000 cc. of liquids may be maintained. A 25 per cent albumin solution injected intravenously gives excellent nourishment and serves more usefully against the wet brain than injected dextrose or sucrose solutions.

Urinary Drainage.—The overdistention of the bladder of the stuporous patient should not be allowed to persist; both retention and incontinence are encountered, and these should be treated according to present day urologic principles. The wet soiled linen greatly contributes to the occurrence of decubitus ulcers.

Sedation.—Stuporous or unconscious patients require no sedation. Restless patients may have phenobarbital 1 to 3 grains (0.06 to 0.2 Gm.), bromides 20 to 60 grains (1.29 to 3.88 Gm.), chloral hydrate 20 to 30 grains (1.29 to 1.94 Gm.) or paraldehyde 1 to 3 drachms (3.88 to 11.65 Gm.) per rectum. For patients with severe restlessness, delirium, intravenous "pentothal sodium" or "amytal sodium" may be needed, but narcotics are to be avoided for several reasons: Their miotic effect prevents the development of localizing ocular signs, they depress the activity of the respiratory and cardiovascular mechanisms, they increase intracranial tension, they may exert undesirable side effects on the gastrointestinal tract and, finally, as sedatives they do not calm the patient any more than the aforementioned, less noxious agents. Generally speaking, the apoplectic patient should have the benefit of the treatment developed by neurosurgeons in cases of head trauma.[31] These principles have not been consistently applied to patients suffering from strokes.

---

[25] Schneider, H., and Schneider, D.: Untersuchungen über die Regulierung der Gehirnblutung, Arch. f. exper. Path. u. Pharmakol. **175**: 606 and 640, 1934.

[26] White, J. C.; Brooks, J. R.; Goldthwaite, J. C., and Adams, R. D.: Changes in Brain Volume and Blood Content After Experimental Concussion, Ann. Surg. **118**: 619, 1943.

[27] de Takats, G.; Trump, R. A., and Gilbert, N. C.: The Effect of Digitalis on the Clotting Mechanism, J. A. M. A. **125**: 840 (July 22) 1944.

[28] Greppi, F.: Ueber die intrakraniell-drucksenkende, Wirkung des Euphyllins, Verhandl. d. deutsch. Gesellsch. f. Kreislaufforschung. **7**: 316, 1934.

[29] de Takats, G., and Jesser, J. H.: Pulmonary Embolism: Suggestions for Its Diagnosis, Prevention and Management, J. A. M. A. **114**: 1415 (April 13) 1940.

[30] de Takats, G.; Fenn, G. K., and Jenkinson, E. L.: Reflex Pulmonary Atelectasis, J. A. M. A. **120**: 686 (Oct. 31) 1942.

Surgical Exploration in Apoplexy.—This problem is just in its infancy. As Aring[6] pointed out, every massive cerebral hemorrhage above a certain size is fatal. Our mortality in the present series is 77 per cent, and here is a neurosurgical problem which needs to be attacked before the blood reaches the intraventricular system. Ventriculograms and arteriograms may be helpful in localizing the hemorrhage. The indications and results of such clot evacuations in cases of spontaneous intracerebral hemorrhage are yet unknown.

SUMMARY

In the diagnosis of apoplexy it is important to differentiate between cerebral embolism, thrombosis (or softening) and hemorrhage. In treatment the collateral stasis, the vasoparalysis and the edema accompanying the cerebrovascular accident are to be stressed. In 25 patients the cervical sympathetic trunk was blocked with procaine on the side of the lesion. (Other methods of combating cerebral edema and stasis may be added.) Good response was obtained in 19 of these patients. Regain of consciousness and of speech, motor improvement and conversion of flaccid into spastic paralysis were also observed. These results suggest that a less passive attitude should be taken in regard to the treatment of apoplexy.

122 South Michigan Avenue.
104 South Michigan Avenue.

---

[31] Meyers, R.: The Management of Acute Craniocerebral Trauma, Illinois M. J. **90**: 310, 1946.

Hematological Individuality.—The remarkable thing about human and animal blood in general is that no two individuals of any particular species have identical blood properties. In other words, we have a hematological individuality resembling that of our fingerprints. This individuality is the result of a number of substances which are present in the red blood cells. The substances are readily demonstrable by specific antibodies, so that with a particular antigen the blood is either clumped or it is not clumped. There must be some reason why nature put all these agglutinable substances in the red cells; but as physicians we are chiefly interested in the parallelism of this individuality to the results that we observe in skin and tissue transplants. The only successful skin grafts are the autogenous. The individual difference in transplantation results runs parallel to the individuality of the several blood factors in the red blood cells. These substances in the red blood cells are inherited and follow distinct laws of human heredity.—Philip Levine, M.D., Clinical Importance of Rh Factor, *Bulletin of the U. S. Army Medical Department*, February 194

THE NEWER CONCEPT OF ALLERGY TO DRUGS AND BACTERIA

FRANCIS C. LOWELL, M.D.
Boston

The word allergy is used today to signify two rather different concepts. In the narrower sense the word is used to designate the field of diagnosis and treatment of those diseases, especially asthma, hay fever, eczema and urticaria, that follow or are believed to follow exposure to certain substances. In a broader sense the word allergy denotes in addition a variety of hypersensitive states arising in infections or as a result of exposure to drugs, antibiotics and the numerous preparations of plant or animal origin used in the modern practice of medicine. In this latter sense the field of allergy is indeed a wide one.

A large number of important diseases are being considered or studied from the point of view of a possible allergic mechanism, many of which lie entirely outside the province of the great majority of practicing allergists. By way of illustration, there may be mentioned glomerulonephritis,[1] rheumatic fever,[2] rheumatoid arthritis, periarteritis nodosa,[3] polyneuritis, Reiter's disease, Löffler's syndrome, disseminated lupus erythematosus, dermatomyositis, sympathetic ophthalmia, erythema nodosum and a number of other skin conditions, sarcoid, scleroderma, eosinophilic granuloma of bone,[4] the postinfectious encephalitides, Schilder's disease, multiple sclerosis and encephalitis following prophylaxis for rabies.[5] The list could doubtless be extended considerably. There is increasing experimental evidence to support the view that in the pathogenesis of some of these conditions allergy to drugs and bacteria or bacterial products or allergy associated in some manner with infections plays an important role. The evidence for this is derived largely from animal experimentation involving in many instances improved methods for the production of the hypersensitive state. Striking pathologic lesions have been shown to follow the induction in the experimental animal of "autoimmunity" against a single organ such as the kidneys or the central nervous system, observations which may have an important bearing on certain diseases in man.

The experience of every physician practicing medicine today includes many instances of allergic reactions to drugs and bacteria, but the understanding of such reactions remains incomplete. The difficulty lies in the absence of a direct means of investigating these conditions. The methods which are ordinarily used in immunologic problems do not seem to apply in the great majority of drug or bacterial allergies, in which

---

From the Evans Memorial and Massachusetts Memorial hospitals and the Department of Medicine, Boston University School of Medicine.

Read before the Section on Miscellaneous Topics at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

[1] Kay, C. F.; Lucchesi, P. F., and Rutherford, R. B.: An Experimental Investigation of an Immunologic Mechanism as the Cause of Glomerulonephritis, J. Immunol. **42**: 369 (Dec.) 1941.

[2] Coburn, A. F.: Observations on the Mechanism of Rheumatic Fever, Lancet **2**: 1025 (Oct. 31) 1936. Gregory, J. E., and Rich, A. R.: The Experimental Production of Anaphylactic Pulmonary Lesions with the Basic Characteristics of Rheumatic Pneumonitis, Bull. Johns Hopkins Hosp. **78**: 1 (Jan.) 1946.

[3] Rich, A. R., and Gregory, J. E.: The Experimental Demonstration that Periarteritis Nodosa Is a Manifestation of Hypersensitivity, Bull. Johns Hopkins Hosp. **72**: 65 (Feb.) 1943.

[4] Schajowicz, F., and Polak, M.: Study of So-Called "Eosinophilic Granuloma" and Its Relations to Xanthomatosis of Bone, Arch. de histol. normal. y patol. **3**: 47 (June) 1946.

[5] Schwenkter, F. F., and Rivers, T. M.: The Antibody Response of Rabbits to Injections of Emulsions and Extracts of Homologous Brain, J. Exper. Med. **60**: 559 (Nov.) 1934.

circulating antibody is apparently absent or, if present, may be unrelated to the hypersensitive state. Experiments in guinea pigs have shown, for example, that sensitization to simple chemical compounds may be readily established but that circulating antibody may be undetectable. Passive transfer of the contact or tuberculin type of sensitivity cannot be achieved by injecting serum from an allergic animal into a normal one. However, a transient passive sensitization of this type has been shown to follow the injection of peritoneal exudate containing large numbers of living white cells from a sensitive animal into the abdominal cavity of a normal animal.[6] Thus in these instances the ability to sensitize resides in the cell. Similarly, cells washed free of serum obtained from tuberculous guinea pigs [7] or rabbits [8] are killed by exposure to tuberculin in tissue culture, and this susceptibility to tuberculin is transmitted to the descendants for at least several generations.[8] When under appropriate conditions circulating antibody for old tuberculin appears in the serum, allergic reactions associated with it are usually of the anaphylactic type.[9] In these circumstances allergic shock or the immediate type of cutaneous reaction may follow injection of tuberculin into the sensitive animal. However, damage to cells in vitro in the presence of the antigen occurring only on the addition of circulating antibody has not been demonstrated.

Application of the usual immunologic technics is limited not only by the occurrence of allergy to drugs and bacteria in the absence of circulating antibody but also by the difficulty of defining the role of a circulating antibody in the production of allergic disease. A considerable number of infectious diseases, for example, are associated with agglutinins which appear to bear no relation to the infectious agent. The best known of these is the Wassermann antigen, for which reagin may appear not only in syphilis but in malaria, leprosy, vaccinia, trypanosomiasis, kala-azar, infectious mononucleosis, Vincent's infection and occasionally in other infectious states, constituting in all but the first listed, namely syphilis, the biologically false positive reaction. Other antigens of tissue or bacterial origin may also react with the blood of patients with certain infections, as in the agglutination of proteus OX 19 by serum from patients convalescing from typhus, agglutination of sheep cells in infectious mononucleosis, cold hemagglutinins and complement-fixing antibodies from normal mouse lung in primary atypical pneumonia of unknown cause,[10] agglutination of an "indifferent streptococcus" in the same disease,[11] "antibody" for the somatic C substance of the pneumococcus in many infectious states [12] and capsule-swelling activity for the pneumococcus of type 27 and others.[13] Nothing is known concerning the role of these various serologically reactive constituents that appear in the serum with no apparent relation to the causative agent of the disease, nor, with rare exceptions [14] do they give rise to any difficulties in the person possessing them. Finally, "natural antibodies" for various rabbit tissues have been demonstrated in normal rabbits,[15] and most normal persons have circulating "natural antibody" for type 7 pneumococci.[16] Thus the demonstration of an agglutinin or precipitin or any other serologically reactive factor in the serum of a person with suspected allergic disease adds little to the knowledge of the condition unless it can also be shown precisely what change the component is capable of bringing about physiologically or pathologically.

The successful use of cutaneous tests as a diagnostic aid in hay fever, asthma, sensitivity to heterologous serums and some other conditions has led many workers to adopt them in the study of allergy to bacteria. A number of considerations indicate, however, that the interpretation of such tests made with bacterial antigens must necessarily be difficult or impossible unless a great deal of precise information is available concerning the testing material and the person to be tested. The difficulty stems from the complex antigenic composition of bacteria [17] and from the frequency and variety of exposure to bacteria or their products both in health and in disease. A further complicating factor is the presence in widely different bacterial species and tissues of antigenic components which may be identical or similar. Thus the demonstration of reactivity of the skin to a bacterial vaccine, for example, need not mean that allergy has developed as a result of exposure to the organism from which the vaccine was made. On the contrary, the reactivity of the skin may depend on previous exposure to some entirely unrelated organism which contained one or more similar allergenic or antigenic components. A further difficulty arises from the necessity of gaging sensitivity of the mucous membrane, or of the pulmonary or other tissue by the reactions elicited in the skin. Thus the investigation of allergic states of bacterial origin by means of cutaneous tests can hardly be expected to yield clearcut results.

Reactions of an allergic nature may be grouped, perhaps somewhat arbitrarily, in three main categories differing, superficially at least and possibly fundamentally, in the matter of antibody. First there are those states associated with and apparently dependent on the production of a heat stabile antibody, which when present in the blood is demonstrable in vitro by the usual immunologic technics and in vivo by anaphylaxis, the Arthus reaction, the immediate type of cutaneous reaction and the capacity to sensitize passively. It is this type of antibody that is used for serologic diagnosis and for passive and, for the most part, active immunization against certain infections and toxins. There is a striking paucity of allergic diseases in man, the pathogenesis of which is clearly dependent on the allergic reaction giving rise to this type of antibody. A few examples are erythroblastosis fetalis, certain transfusion reactions, serum disease and the Arthus reaction. However many additions will probably be made to this brief list in the future.

---

[6] Landsteiner, K., and Chase, M. W.: Experiments on Transfer of Cutaneous Sensitivity to Simple Compounds, Proc. Soc. Exper. Biol. & Med. **49:** 688 (April) 1942. Chase, M. W.: The Cellular Transfer of Cutaneous Hypersensitivity to Tuberculin, Proc. Soc. Exper. Biol. & Med. **59:** 134 (June) 1945.

[7] Rich, A. R., and Lewis, M. R.: The Nature of Allergy in Tuberculosis as Revealed by Tissue Culture Studies, Bull. Johns Hopkins Hosp. **50:** 115 (Feb.) 1932.

[8] Moen, J. K., and Swift, H. F.: Tissue Culture Studies on Bacterial Hypersensitivity: I. Tuberculin Sensitive Tissues, J. Exper. Med. **64:** 339 (Sept.) 1936.

[9] Zinsser, H.: Studies on the Tuberculin Reaction and on Specific Hypersensitiveness in Bacterial Infection, J. Exper. Med. **34:** 495 (Nov.) 1921. Enders, J. F.: Anaphylactic Shock with the Partial Antigen of the Tubercle Bacillus, J. Exper. Med. **50:** 777 (Dec.) 1929.

[10] Peterson, O. L.; Ham, T. H., and Finland, M.: Cold Agglutinins (Autohemagglutinins) in Primary Atypical Pneumonias, Science **97:** 167 (Feb. 12) 1943. Thomas, L.; Curneu, E. C.; Mirick, G. S.; Ziegler, J. E., and Horsfall, F. L., Jr.: Complement Fixation with Dissimilar Antigens in Primary Atypical Pneumonia, Proc. Soc. Exper. Biol. & Med. **52:** 121 (Feb.) 1943.

[11] Thomas, L.; Mirick, G. S.; Curneu, E. C.; Ziegler, J. E., Jr., and Horsfall, F. L., Jr.: Serological Reactions with an Indifferent Streptococcus in Primary Atypical Pneumonia, Science **98:** 566 (Dec. 24) 1943.

[12] Ash, R.: Nonspecific Precipitins for Pneumococcic Fraction C in Acute Infections, J. Infect. Dis. **53:** 89 (July-Aug.) 1933.

[13] Löfström, G.: Non-Specific Capsular Swelling in Pneumococci: A Serological and Clinical Study, Stockholm, P. A. Norstedt & Söner, 1943.

[14] Ginsberg, H. S.: Acute Hemolytic Anemia in Primary Atypical Pneumonia Associated with High Titer of Cold Agglutinins: Report of a Case, New England J. Med. **234:** 826 (June 20) 1946.

[15] Kidd, J. G., and Friedewald, W. F.: A Natural Antibody That Reacts in Vitro with a Sedimentable Constituent of Normal Tissue Cells: I. Demonstration of the Phenomenon, J. Exper. Med. **76:** 543 (Dec.) 1942; A Natural Antibody That Reacts in Vitro with a Sedimentable Constituent of Normal Tissue Cells: II. Specificity of the Phenomenon; General Discussion, J. Exper. Med. **76:** 557 (Dec.) 1942.

[16] Finland, M.; Tilghman, R. C.; Ruegsegger, J. M., and Dowling, H. F.: Clinical and Immunologic Observations in Cases of Pneumococcus Type VII Pneumonia Treated with Concentrated Type-Specific Antibody, Am. J. M. Sc. **193:** 59 (Jan.) 1937.

[17] Dubos, R. J.: The Bacterial Cell in Its Relations to Problems of Virulence, Immunity and Chemotherapy, Cambridge, Mass., Harvard University Press, 1945, pp. 99-130.

A second and large group is characterized by an antibody differing from the first in that it is heat labile, has never been shown conclusively to react in vitro and is capable of producing prolonged passive sensitization of tissues, especially skin, into which it is injected. This antibody, though most commonly seen in "atopic" persons, some of whom exhibit extreme degrees of hypersensitivity, may nevertheless develop in anyone under suitable provocation, as for example, in trichinosis. Allergic reactions to drugs and bacteria rarely fall into this group.

The third and probably the largest group is characterized by the absence of demonstrable antibody in the circulating blood. It includes most of the recognized allergies to drugs and infections and indeed may not be homogeneous. Reactions of the tuberculin type may follow injection of the allergen, or a local superficial reaction may often be produced by a patch test. In many instances of drug allergy, however, no local lesion can be produced and the allergic reaction, usually systemic, only appears when the drug is absorbed into the circulation.

Classification of allergic reactions is necessarily difficult in view of the present ignorance concerning mechanisms. A further confusing factor is the frequent coexistence of more than one type of allergy, which so frequently occurs in infections. For example, an immediate type of cutaneous reaction to the capsular polysaccharide of the pneumococcus may coexist with the tuberculin type of reaction to a protein contained within the bacterial cell. The first is passively transferable to animals and man with animal serums having a high precipitin titer for the capsular substance. An example of another kind is the coexistence of two types of antibody for a single antigen in treated pollen-sensitive subjects[18] and in a diabetic patient exhibiting both allergy and resistance to insulin.[19]

The role of the cell in the development and expression of allergic reactions needs special emphasis. The great majority of the diseases of supposedly allergic origin previously mentioned are associated with damage to or death of tissue cells, which leads in some instances to the death of the entire organism. As has been stated, death of allergic cells may follow exposure to the allergen in vitro and leukocytes from the peritoneal exudate of an allergic animal may confer a transient sensitivity on a normal one. There is also considerable evidence, in addition to that implicating the reticuloendothelial system,[20] that lymphocytes and plasma cells are directly responsible for the elaboration of antibodies[21] and that liberation of antibodies may be influenced or perhaps controlled by the endocrine system.[22] The importance of the cell is also illustrated by the "flare-up" reaction seen during treatment with pollen extracts and in drug allergies as well as by the focal reaction in tuberculosis following the injection of tuberculin. An interesting example of this type of response has been described recently[23] in persons who were vaccinated with a brucella antigen and in whom brucellosis later developed. A direct approach to the behavior of various types of hypersensitive cells on contact with the allergen is needed. Adaptation of modern methods of tissue culture might well provide a technic applicable to problems in human allergic disease.

The conditions under which exposure to a drug or other potentially allergenic substance occurs may be of the greatest importance so far as the development of the hypersensitive state is concerned. This is borne out in the first place by experience with the local application of sulfonamide drugs to eczematous areas of the skin. Allergic reactions were so frequent and severe that their prolonged use on such areas has been cautioned against repeatedly.[24] In the second place, extensive experience with animals has shown that the development of both the hypersensitive state and antibody may be greatly enhanced by appropriate procedures. Many of these are associated with prolonged and slow absorption of the antigen from the injected site, as in the use of alum-precipitated toxoids or the antigen in liquid petrolatum and a hydrous wool fat base, but it seems unlikely that the enhanced response is due to these factors alone. Especially good results have been obtained when the antigen is mixed with bacteria or their products which cause an inflammatory reaction. Thus lens antibody was readily produced in rabbits by injections of lens substance mixed with staphylotoxin,[25] renal lesions were produced in rabbits and rats by the injection of homologous kidney mixed with streptococcic extracts[26] and striking lesions of the central nervous system were rapidly produced in monkeys by the injection of monkey brain incorporated in liquid petrolatum and a hydrous wool fat absorption base with added tubercle bacilli.[27]

---

[18] Loveless, M. H.: Immunologic Studies of Pollinosis: I. The Presence of Two Antibodies Related to the Same Pollen-Antigen in the Serum of Treated Hay-Fever Patients, J. Immunol. **38:** 25 (Jan.) 1940.

[19] Lowell, F. C.: Evidence for the Existence of Two Antibodies for Crystalline Insulin, Proc. Soc. Exper. Biol. & Med. **50:** 167 (May) 1942; Immunologic Studies in Insulin Resistance: I. Report of a Case Exhibiting Variations in Resistance and Allergy to Insulin, J. Clin. Investigation **23:** 225 (March) 1944; Immunologic Studies in Insulin Resistance: II. The Presence of a Neutralizing Factor in the Blood Exhibiting Some Characteristics of an Antibody, J. Clin. Investigation **23:** 233 (March) 1944; Immunologic Studies in Insulin Resistance: III. Measurement of an Insulin Antagonist in the Serum of an Insulin-Resistant Patient by the Blood Sugar Curve Method in Mice, J. Clin. Investigation **26:** 57 (Jan.) 1947.

[20] Sabin, F. R.: Cellular Reactions to a Dye-Protein with a Concept of the Mechanism of Antibody Formation, J. Exper. Med. **70:** 67 (July) 1939.

[21] McMaster, P. D., and Hudack, S. S.: The Formation of Agglutinins Within Lymph Nodes, J. Exper. Med. **61:** 783 (June) 1935. Ehrich, W. E., and Harris, T. N.: The Formation of Antibodies in the Poplitеal Lymph Node in Rabbits, J. Exper. Med. **76:** 335 (Oct.) 1942. Ehrich, W. E., and Harris, T. N.: The Site of Antibody Formation, Science **101:** 28 (Jan. 12) 1945. Harris, T. N.; Grimm, E.; Mertens, E., and Ehrich, W. E.: The Role of the Lymphocyte in Antibody Formation, J. Exper. Med. **81:** 73 (Jan.) 1945. Philips, F. S.; Hopkins, F. H., and Freeman, M. L. H.: Effect of Tris (Beta-Chloroethyl) Amine on Antibody Production in Goats, J. Immunol. **55:** 289 (March) 1947. Fagraeus, A.: Plasma Cellular Reaction and Its Relation to the Formation of Antibodies in Vitro, Nature, London **159:** 499 (April 12) 1947.

[22] Dougherty, T. F.; White, A., and Chase, J. H.: Relationship of the Effects of Adrenal Cortical Secretion on Lymphoid Tissue and on Antibody Titer, Proc. Soc. Exper. Biol. & Med. **56:** 28 (May) 1944.

[23] Howe, C.; Miller, E. S.; Kelly, E. H.; Bookwalter, H. L., and Ellingson, H. V.: Acute Brucellosis Among Laboratory Workers, New England J. Med. **236:** 741 (May 15) 1947.

[24] Livingood, C. S., and Pillsbury, D. M.: Sulfathiazole in Eczematous Pyoderma, J. A. M. A. **121:** 406 (Feb. 6) 1943. Cohen, M. H.; Thomas, H. B., and Kalisch, A. C.: Hypersensitivity Produced by the Topical Application of Sulfathiazole, J. A. M. A. **121:** 408 (Feb. 6) 1943. Schaffer, B.; Lentz, J. W., and McGuire, J. A.: Sulfathiazole Eruptions, J. A. M. A. **123:** 17 (Oct. 2) 1943.

[25] Swift, H. F., and Schultz, M. P.: Studies in Synergy: The Synergic Action of Staphylotoxin and Beef Lens Extract in Rabbits, J. Exper. Med. **63:** 703 (May) 1936.

[26] Schwenkter, F. F., and Comploier, F. C.: The Production of Kidney Antibodies by Injection of Homologous Kidney plus Bacterial Toxins, J. Exper. Med. **70:** 223 (Sept.) 1939. Cavelti, P. A., and Cavelti, E. S.: Studies on the Pathogenesis of Glomerulonephritis: I. Production of Auto-Antibodies to Kidney in Experimental Animals, Arch. Path. **39:** 148 (March) 1945.

[27] Kabat, E. A.; Wolf, A., and Bezer, A. E.: The Rapid Production of Acute Disseminated Encephalomyelitis in Rhesus Monkeys by Injection of Heterologous and Homologous Brain Tissue with Adjuvants, J. Exper. Med. **85:** 117 (Jan.) 1947. Morgan, I. M.: Allergic Encephalomyelitis in Monkeys in Response to Injection of Normal Monkey Nervous Tissue, J. Exper. Med. **85:** 131 (Jan.) 1947.

A consideration of the role of bacteria or their products in enhancing the development of hypersensitivity to an antigen injected in mixture with them raises important questions with regard to allergy to bacteria. It is commonly stated, for example, that glomerulonephritis represents an allergic reaction to the streptococcus. However if glomerulonephritis in man is regarded in the light of the experimental production of glomerular lesions in animals with antibodies for kidney tissues, a more reasonable assumption would be that this disease arises because autoantibodies to kidney develop in consequence of a streptococcic infection acting as an adjuvant. According to this view, allergy to the streptococcus itself need not occur. The lesions of rheumatic fever have been considered in a similar manner[28] as have also the postinfectious encephalitides.[5] It appears therefore that two types of allergy associated with infections are possible, one resulting from development of hypersensitivity to the infecting agent itself and the other occurring as a result of autoimmunization due to the adjuvant action of the infecting agent.

SUMMARY

Investigation of allergic states is made difficult by the lack of satisfactory methods, those most commonly employed having serious limitations and often giving rise to confusion. There is clear need for more direct methods of approach, especially in the clinical study of allergy. Experimentation on human subjects under controlled conditions, such as has been done in a few instances, may find much wider application than it has hitherto.[29] Tissue culture[30] has yielded valuable information, and this appears to be a promising line of investigation.

The tendency today is to ascribe a wide variety of diseases to an allergic origin in the pathogenesis of which drugs and bacteria appear to play an important role. The conditions under which exposure to a substance occurs appear to have a direct bearing on the development of the allergic state. The striking effect of adjuvants in this regard provides a potent tool for investigation. Especially important is the accumulating evidence that bacteria or their products may act as adjuvants and be instrumental in bringing about the development of autoantibodies with tissue specificities.

ABSTRACT OF DISCUSSION

Dr. M. G. Bohrod, Rochester, N. Y.: Anyone who is not a practicing allergist but who is interested in allergy must find it gratifying to see the practicing allergist concerned with this larger group of diseases. A wide list of diseases is being discussed as either allergic or nonallergic. The tendency is to conceive of this list as temporary only in the sense that single diseases will either be put on the list permanently or dropped permanently. It may be that neither will happen. Instead there will be the realization that allergy is a mechanism which is concerned in only some (or many, few or occasional) instances of these diseases or in other words that it is only one of the mechanisms which may produce the disease. I have been fascinated by the concept of Hans Selye. Those who know about this work will recognize the "shock reaction," the "energy of adaptation" and the "diseases of adaptation" that occur. His list of the diseases of adaptation is practically identical with the list that Dr. Lowell gave. In Selye's concept allergy or the allergic mechanism would be one of the kinds of shock reactions which would use up the energy of adaptation. It would also explain why factors other than the antigen itself can produce the disease once it has been started by an allergic mechanism and how, on the other hand, allergens can perpetuate the disease. Specificity is a relative term. Probably no antigen is absolutely specific; theoretically, at least, another substance can be found or produced so closely related chemically or physiologically that it will elicit the same reaction as the original antigen. The same degree of relationship need not exist for all substances. Dr. Lowell has indicated the importance of some of the nonspecific mechanisms in establishing or maintaining allergic states. I should like to point out one which is still not proved but which, if proved, may indicate how a mechanism which is "nonspecific" on an antigen-antibody level may be "specific" on a chemical level. For a couple of years I have been pointing out the similarity of certain of the pathologic features of asthma with vitamin A deficiencies in the lung and with other diseases connected with vitamin A deficiencies. I have been careful to point out that I do not know if there is any relation to asthma itself; it may be purely secondary. But recently it has been shown that vitamin A and substances closely related to it have antihistaminic effects.

SURGICAL EXPERIENCE WITH TUMORS OF THE PITUITARY GLAND

FRANCIS C. GRANT, M.D.
Philadelphia

One thousand and one tumors of the brain were verified in the neurosurgical service of the University and Graduate Hospitals of the University of Pennsylvania, between Jan. 1, 1936 and Jan. 1, 1947. Of these tumors, 101, or 10 per cent, were of pituitary origin, either intrasellar adenomas or extrasellar craniopharyngiomas. It is with the results of combined surgical and roentgen ray therapy of these lesions that this paper is concerned. Since intrasellar and extrasellar tumors differ somewhat in clinical manifestations and greatly in their response to either type of therapy, the two groups will be considered separately.

What benefit may be expected from the treatment of a pituitary tumor of either type? In none of the cases in this series in which a craniopharyngioma was verified were the glandular symptoms materially improved by any therapy—irradiation, endocrinologic or surgical. In 3 out of 4 cases in which diabetes insipidus was noted, complete relief resulted from evacuation of the cystic tumor. To balance this, however, in 2 other instances diabetes insipidus was a consequence of operation, requiring control with posterior pituitary injection U. S. P. ("pituitary extract"). Of the adenomas of the pituitary gland, 10 were of the eosinophilic type, 6 being associated with definite acromegaly. After irradiation therapy and surgical evacuation of the gland, little or no change in the acromegalic symptoms was noted. Of the 71 cases of adenoma, whether eosinophilic or chromophobic, loss of sexual potency, accompanied with pronounced menstrual disturbance, usually complete amenorrhea, was noted in 65. In only 1 of the 41 female patients was menstruation restored to normal rhythm or amount with combined therapy. In 2 of the younger male patients mild improvement in sexual power occurred.

The principal responsibility assumed by the medical attendant, whether surgeon, roentgenologist or endocrinologist, in a case of pituitary neoplasm is restoration or preservation of vision. It is to this end that all

---

28. Cavelti, P. A.: Auto-Antibodies in Rheumatic Fever, Proc. Soc. Exper. Biol. & Med. 60:379 (Dec.) 1945.

29. Sulzberger, M. B.; Kanot, A.; Baer, R. L., and Lowenberg, C.: Sensitization by Topical Application of Sulfonamides, J. Allergy 18:92 (March) 1947. Lowell, F. C., and Schiller, I. W.: Reduction in Vital Capacity of Asthmatic Subjects Following Exposure to Aerosolized Pollen Extracts, Science 105:317 (March 21) 1947.

Read before the Section on Nervous and Mental Diseases at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, June 12, 1947.

treatment in such cases should be directed, since glandular dysfunction cannot be materially benefited. Visual function can be restored, or at least preserved at a useful level, by an intelligent combination of irradiation and surgical therapy.

In a previous paper,[1] the results obtained with the combined therapy of pituitary adenomas were outlined. No reason for change in these methods has appeared. A patient with evidence of an intrasellar tumor of the pituitary gland, glandular dystrophy, roentgenographic evidence of changes in the sella, contraction of one or both temporal visual fields or a retinoscopic report of early atrophy of one or both optic nerves may be advised to undergo irradiation therapy or surgical exploration. If the visual acuity is better than 6/9 in each eye, and if the atrophy of the optic nerve is not advanced, irradiation therapy is indicated regardless of changes in the visual fields or the sella. However, if visual acuity is less than 6/9 in either eye, especially if the impairment in vision has advanced with any speed, say, in less than six months, to a complete unilateral or bilateral cut of the temporal field, and if the atrophy of the optic nerve is pronounced in either eye, then surgical intervention must be seriously considered. In any case in which visual loss is rapid and severe, surgical evacuation of the gland will relieve pressure on the optic nerves adequately and promptly and produce a more complete restoration or preservation of vision. After surgical collapse of the adenoma, studies of the visual fields and visual acuity are ordered every three months. As long as the fields and the acuity improve or are unchanged, no further treatment is indicated. If progressive contraction of the temporal field or loss of acuity is noted, irradiation therapy is promptly instituted. A careful check on both elements of vision gives accurate information as to the results of therapy and the need for further treatment.

ADENOMAS OF THE PITUITARY GLAND

The adenomas of the pituitary gland, of whatever type, form the more favorable group for either means of treatment. Seventy-one pituitary adenomas, 61 chromophobic and 10 eosinophilic, were verified. In but 7 cases had irradiation therapy been used prior to operation—in 2 cases for three years, in 3 cases for two years and in 2 cases as a single course. In the 71 cases, 85 operative exposures were carried out, with 8 deaths, a case mortality of 11.2 per cent and an operative mortality of 9.4 per cent. Of the remaining 63 cases, 55—46 of chromophobic and 9 of eosinophilic adenoma—could be traced through the Tumor Registry.

Table 1 gives the period of postoperative survival. It is noteworthy that irradiation therapy was required in 16 of the 27 cases with a survival period of five years or more. Four of the patients with chromophobic adenoma have died—1 within six months, of recurrence of the tumor; 1 in two years, of diabetes; 1 eight years after operation, of cancer of the breast, and 1 ten years after operation, of recurrence of the tumor. Forty-one of the patients with chromophobic adenoma are still living, the average period of postoperative survival being five years. Of the 9 patients with eosinophilic tumors, 2 died—the one two years after operation, of recurrence, and the other four years after operation, of pneumonia. Eight survivors have lived an average of four years since operation. It is interesting that there were no operative deaths among the 10 patients with eosinophilic tumors.

In our previous article on pituitary adenomas, the method devised by Snell for determining visual functions was used to compare the results of operative treatment and those of combined surgical treatment and irradiation. In the present series of 55 cases of adenoma, both eosinophilic and chromophobic, no irradiation therapy was received in 24, and both types of treatment were used in 31. Of the 24 cases in which irradiation was not employed, results of treatment were good in 14 and unsatisfactory in 10. The average preoperative visual efficiency was 34 per cent. In 14 cases with an average follow-up period of five years, visual efficiency increased to an average of 58 per cent. In 10 cases with less satisfactory improvement, the increase in visual acuity during an average five year period of observation was from 29 to 44 per cent. In the 31 cases in which combined irradiation and surgical treatment were used, visual acuity improved from 32 to 68 per cent in 19 and from 31 to 54 per cent in 12. The improvement has been maintained over an average period of five years (table 2).

TABLE 1.—*Period of Postoperative Survival in Fifty-Five Cases of Adenoma of the Pituitary Gland*

Period of Survival	No. of Cases	Roentgen Treatment, No. of Cases
1 year	6	4
2 years	10	6
3 years	5	2
4 years	6	3
5 years	7	2
6 years	6	3
7 years	3	2
8 years	2	0
9 years	3	3
10 years	7	6
Total	55	31

TABLE 2.—*Visual Acuity in Fifty-Five Cases* of Pituitary Adenoma*

	No. of Cases
Surgical treatment only	
Visual acuity improved from 34-58%	14
Visual acuity improved from 29-44%	10
Average improvement with surgical treatment alone, 31%	
Combined irradiation and surgical treatment	
Visual acuity improved from 32-68%	19
Visual acuity improved from 31-54%	12
Average improvement with surgical treatment and irradiation, 42%	

* The series included 45 cases of chromophobic and 10 of the eosinophilic type.

An operative mortality of 9.4 per cent seems high, considering that the procedure used is a small craniotomy with intracapsular enucleation of the tumor. In but 1 case was complete removal carried out, in this instance under the misapprehension that the tumor was a meningioma. The craniotomy is made on the side of the eye showing the greater loss of visual acuity, although a right-sided bone flap is turned down whenever possible. The dura is elevated from the orbital plate and cut along the sphenoid ridge, so that the approach, for the most part, is extradural. The olfactory nerve, the internal carotid artery and the optic nerve are identified, the last structure usually being stretched taut over the intrasellar tumor. The capsule of the adenoma is exposed, coagulated and incised. After incision of the capsule, a material, about the consistency of tooth paste, usually extrudes, although the contained material may be more fluid and bloody. In 3 instances of subsequently proved adenoma, yellow fluid, much like that seen in a craniopharyngioma, was obtained. This is important, since a cyst containing yellow or yellow-green fluid has been considered pathognomonic of a craniopharyngioma. However, no typical crystals could be identified in the 2 cases in which sufficient fluid for study was collected. After incision of the capsule and extrusion of its contents, the adenoma collapses, relieving pressure on the optic nerves and chiasm. Sufficient intracapsular material for pathologic verification is obtained by gentle curettage of the interior of the tumor, and then further removal of its contents is accomplished by suction. No attempt is made to tease out the capsule. At most, further collapse and contraction may be produced by coagulating it. The possibility of injury to the closely adjacent carotid artery is the reason for conservative handling of these adenomas. In 2 of the 8 fatal cases in this series, rupture of a carotid vessel, with hemorrhage and damage to the brain during its control, was the direct cause of death. In another, nonfatal, case, in which operation was performed in 1936, the right carotid artery was torn and successfully clipped. The woman has survived ten years, with 6/9 vision in the left eye and 20/70 vision in the right eye, an improvement over the preoperative level of 6/22 and 1/60, respectively. She is badly handicapped by a spastic hemiplegia of the left side, which has spoiled an otherwise happy result. The other 6 fatal cases fall into two groups. In 3 cases (2 women and 1 man) there was a history of two to three years of visual loss, headache, gonadal insufficiency, weak spells and intolerance to cold. The basal metabolic rates in these 3 cases were —30, —34 and —41 per cent, respectively. Roentgenographic studies showed a ballooned sella with preservation of the posterior clinoid processes. In 2 of these cases prolonged irradiation therapy had been given, without improvement. In each of the 3 cases a small transfrontal flap was turned down, with use of local anesthesia, the tumor gutted and material removed for verification. After this simple procedure, the patients became stuporous and never recovered consciousness, dying five, nine and twelve days, respectively, after operation. Autopsy in 2 of these cases showed atrophy of the adrenal glands, thyroid and ovaries or testes—a polyglandular failure. A satisfactory test for adrenal insufficiency would be of value, so that surgical measures could be avoided in cases with severe damage to the adrenal cortex. Certainly, the administration of adrenal cortex extract is of little benefit. But the operative mortality in these cases of generalized glandular insufficiency is high, and surgical attack should be undertaken with caution.

---

[1] Grant, F. C.: The Surgical Treatment of Pituitary Adenomas, J. A. M. A. 113: 1279 (Sept. 30) 1939.

Table 3.—*Data in Thirty Cases of Craniopharyngioma*

		No. of Cases	Mortality Rate
Deaths		10	33%
Operations (30 cases)		40	22.5%
Age under 24 years		12	
Fröhlich's syndrome		9	
Over 24 years		18	
Fröhlich's syndrome		3	
Roentgenologic evidence of suprasellar calcification		13	
Survival period			
Died within 10 years		9	
Still living		11	
1 year	3		
2 years	3		
4 years	2		
6 years	1		
7 years	1		
10 years	1		

In the 3 remaining fatal cases the adenoma was observed to have spread beyond the sella and involved adjacent structures. In all these cases roentgenographic study revealed destruction of the sella with disappearance of the posterior clinoid processes. In 1 case ptosis of the eyelid was present; in another, diplopia and a Foster Kennedy syndrome, and in the third, loss of the sense of smell and choked disks. A large subfrontal tumor, bilateral in 1 case, unilateral in the second, was observed. The tumor in the third case passed backward to involve the third ventricle and extend through the incisura. In 2 of these cases irradiation therapy had been given, without benefit. Death was accompanied with hyperthermia in every case.

These cases were all of old, burned-out chromophobic adenomas. Pituitary function and, therefore, polyglandular activity were at a very low ebb. Apparently, simple evacuation of the adenoma in such circumstances is enough to abolish completely what little pituitary function remains. In this connection, it is interesting to note that in the 10 cases of eosinophilic tumors, in which the pituitary gland is overactive, no deaths followed operative intervention. The changes in gonadal function, loss of libido, amenorrhea, a low basal metabolic rate, lethargy and intolerance to cold may all be as apparent with an eosinophilic adenoma as with the chromophobic type. But pituitary function does not seem to be as severely impaired and can carry the patient through surgical evacuation of the gland. Furthermore, the eosinophilic adenomas do not tend to overflow and escape from the sella, as does the chromophobic type, an important point to be remembered when surgical treatment is indicated.

CRANIOPHARYNGIOMAS

The prognosis for these tumors is discouraging. Unfortunately, they seem to be entirely unresponsive to irradiation; consequently, surgical attack is indicated. All the complications inherent in the position and origin of these tumors arise to plague the surgeon. Many of these lesions, as is to be expected from their congenital origin, occur in children. The Fröhlich syndrome is too well known to need further description. Dysfunction of the pituitary gland, as well as changes due to suprasellar pressure on the hypothalamus and frequent entanglement of important branches of the carotid artery in the tumor, make surgical measures, whether conservative or radical, extremely hazardous.

This series includes 30 cases of craniopharyngioma. Death occurred in 11 cases—after operation in 10, and in the hospital, without surgical intervention, in 1 case. Forty operative procedures were carried out in these 30 cases—a case mortality of 35 per cent and an operative mortality of 25 per cent.

The diagnosis of these lesions is not particularly difficult. The presence of Fröhlich's syndrome in a child or a young adult, lack of physical development and pronounced retardation in appearance of the secondary sexual characters, as well as roentgenographic evidence of calcification above the sella, are characteristic. Twelve of the patients were under 24 years of age and 9 showed the customary Fröhlich syndrome, whereas of the 18 patients over 24 years of age only 3 had hypopituitary features. Of 28 cases in which roentgenograms were available, a calcified mass appeared in or above the sella in 13, sellar enlargement without a calcified mass was present in 10 and the sella was apparently normal in 5. Of the 20 patients who survived operation, 9 have since died, so that 19 of the 30 patients are known to be dead. Of the remaining 11 patients, 3 have lived a year; 3, for two years; 2, for four years, and 3, for six, seven and ten years each.

The cause of death in the 18 cases was as follows: In 1 case, an 18 year old youth, who had the build and facies of a child of 10, was admitted in stupor, with a temperature of 104 F., and never recovered consciousness. Autopsy showed a suprasellar cyst, containing about 60 cc. of yellow fluid. The pituitary gland, thyroid, adrenal glands and testes all exhibited extensive atrophy. In a second case the patient was admitted in the same condition, with a cleancut Fröhlich syndrome. The cyst was tapped through a burr hole and 40 cc. of "motor oil" fluid removed. Death occurred twelve hours later. Autopsy revealed general glandular atrophy, similar to that in the preceding case. In 4 cases death followed injury to a major branch of the carotid artery during an attempt at complete extirpation of the calcified mass. In 2 cases the cyst was attacked through the corpus callosum. In each case the dystrophy was of the Fröhlich type; local anesthesia was used; the patient never roused after operation and died within forty-eight hours with hyperthermia. Autopsy showed the polyglandular atrophy which is associated with this condition. In 2 cases in which the right frontal lobe was amputated to obtain better access to the tumor, which was completely removed, death was accompanied with hyperthermia. The patients were 34 and 37 years of age, respectively, and showed few signs of involvement of the pituitary gland. In 1 of them the presence of a craniopharyngioma was unexpected, as the sella was normal and no suprasellar calcification could be seen on the roentgenograms. Autopsy in these 2 cases showed general glandular hypoplasia with less involvement of the adrenal glands than might have been expected.

The problem in surgical treatment of a craniopharyngioma is threefold: to escape hyperthermia from damage to the hypothalamus, to prevent complete glandular collapse after operation and to avoid damage to the carotid artery.

SUMMARY

In treatment of adenomas of the pituitary gland of the chromophobic and eosinophilic types, the results of combined surgical and irradiation therapy are more effective than surgical measures alone. The suprasellar, congenital tumors, the craniopharyngiomas, have a poor prognostic outlook. They are not radiosensitive. Surgical reports show a high mortality, with few survivors for any length of time.

3400 Spruce Street.

ABSTRACT OF DISCUSSION

DR. JAMES L. POPPEN, Boston: Craniopharyngioma, in my experience, has been the cause of the highest mortality of any cerebral tumor surgically removed. The tumors which are not fixed to the optic chiasm are usually firmly adherent to the circle of Willis and may extend into the third ventricle. The fixation to the chiasm presents a more favorable condition. If one is fortunate enough to encounter tumors of that type, the mortality will be low and the percentage of recurrence less high, since the growth can be removed more radically. My colleagues and I have no definite criteria in the visual fields and the visual acuity by which we decide when roentgen therapy should be instituted, or when surgical measures should be resorted to. Roentgen therapy is instituted in all cases prior to operation if vision is not in immediate jeopardy. There is no question that roentgen irradiation may initiate an emergency; therefore, any patient whose visual acuity is low should be given roentgen treatment in the hospital, and the acuity should be checked daily; any subjective complaint, such as the appearance of scintillating scotomas, during the interval between treatments, should be regarded as ominous. In 3 of our cases this symptom preceded complete, sudden blindness. Even though surgical measures were instituted immediately, vision returned slowly. The optic nerves seem to tolerate gradually increasing local pressure, with vision returning fairly promptly in the bitemporal region of blindness, but will not tolerate sudden, severe pressure, such as is initiated by a hemorrhage into the adenoma as a direct result of roentgen therapy. Another possible complication is a gradual extrusion of adenoma laterally under the temporal lobes, even though headache may be relieved by this spontaneous decompression later. Successful removal, however, is almost impossible. We are inclined to be as radical as possible in removal of the capsule of the adenoma, care being taken to preserve the stalk of the pituitary gland. We have not carried out replacement glandular therapy routinely before operation in our cases. Death, when it occurred in our cases, was due to actual surgical complications, such as hemorrhage, postoperative edema in the region of the hypothalamus or infection. In 2 of the 4 cases of Cushing's disease (pituitary basophilism) complete acute collapse of the endocrine system occurred. Intensive replacement therapy had no beneficial effect. Death took place within two days in each case. One can by no means be smug about the results of treatment of pituitary tumors. The outlook is not so favorable as had been assumed before careful evaluation of the results.

DR. MAX PEET, Ann Arbor, Mich.: Dr. Grant's mortality rate is considerably lower than ours at the University of Michigan. We have not used his criteria for evaluation of roentgen therapy versus operation. So many factors may influence visual acuity that we have not considered this question of particular importance; rather, the question has been whether we should give roentgen therapy or operate immediately. With respect to the rapidity of visual loss, if a patient's visual fields, as taken by an outside ophthalmologist, have shown little change over a number of months, we prefer to use roentgen therapy. On the other hand, if the patient or the physician has noticed rapid loss of vision, we believe the situation is a surgical emergency and that the patient should have the privilege of being admitted to the hospital much earlier than in his normal turn. Early in my experience we operated in all cases. Then, we swung completely to roentgen therapy, and for a short time all our patients were treated with roentgen radiation. But we were discouraged with the results, especially in patients who had had rapid loss of vision. The vision of some of these patients did not improve. In fact, visual loss seemed sometimes to be accelerated. We returned to surgical treatment. Now in the cases of chromophobic adenomas, operation depends on the rapidity of loss of vision. We have not operated on a patient with acromegaly for many years. Our therapeutist has been very successful in treating such patients, and none of them have required operation. On the other hand, I can see no reason for using roentgen therapy on the child, or even the adult, with evidence of craniopharyngioma. Irradiation has no effect on this lesion. This tumor must be operated on, even though the mortality rate is much higher than that for the other types. We have been rather successful in operating on the adenomatous craniopharyngiomas, being particularly careful not to cause traction on the floor of the third ventricle. We have had cases of diabetes insipidus after operation, although we had been extremely careful not to damage the brain. As a rule it was temporary and was managed satisfactorily with posterior pituitary injections. Occasionally, there has been permanent damage, and the patient has had to have injections of pituitary daily, or perhaps oftener, for many years. We have not routinely followed our operations with irradiation. I think we do a slightly more radical procedure than Dr. Grant. I want to congratulate him on a brilliant piece of work.

DR. OSCAR HIRSCH, Boston: My approach to tumors of the pituitary gland is by the endonasal route. This method is based on the submucous resection of the septum. This resection is continued as far as the anterior walls of the sphenoid sinus and through the sphenoidal cavities to the enlarged sella. Physicians who have never seen the operation have usually two objections: first, that the operation is performed through a contaminated area, and, second, that the surgeon cannot see clearly enough where he is working. I must correct these prejudices. 1. The pia-arachnoid does not even reach the diaphragm. Therefore, the pituitary gland is encased in a pocket formed only by dura. A new pocket is formed between the flaps of the septum, by splitting the septum, as in submucous resection. This pocket has no communication with the nasal cavity except for the first incision. This pocket is therefore relatively free of micro-organisms. The operation is done extradurally. This explains the low mortality rate of 5 per cent, even before the era of sulfonamide drugs and penicillin. Now, I use penicillin and sulfadiazine prophylactically, and there has been no instance of meningitis in the 8 cases in which I have used this medication. 2. After removal of the cartilage and bone of the septum, the two flaps can be spread apart as far as the width of the nose. This space is wide enough to see every millimeter of the field of operation under the reflected light. I have demonstrated this to many spectators with a simple gadget which I carry on my head mirror. The endonasal approach is the method of choice for cystic tumors (which comprise 17 per cent of all tumors of the pituitary gland), and in this way they can be easily emptied. To reopen the cyst in case of refilling is an even simpler procedure. The endonasal method is also the one of choice for all intrasellar tumors which do not interfere with the optic chiasm. Such tumors occur in 50 per cent of all cases of acromegaly. These tumors may even be called sphenoidal tumors. There has been no fatality in the cases in my series in which this method was used, whereas the cranial method has a mortality of 20 per cent, according to Henderson. According to Henderson, the endonasal method is strongly indicated in cases of central scotoma (11 per cent) and in cases of hemianopsia (7 per cent). In all other cases this method must be considered as next of choice to the cranial method, especially if the previous roentgen treatment has been without noticeable results. In such cases a cystic tumor is to be suspected. Cases of suprasellar tumors with normal sella are excluded from those in which the endonasal method is indicated and are reserved exclusively for the cranial method. During the period of 1919 to 1937, inclusive, I operated on 277 patients by the endonasal method, and of this number, 194 were alive in 1937, when I reviewed my cases. In this number were 37 patients who had been operated on ten to nineteen years previously, and 23 of this group had permanent improvement.

Dr. Francis C. Grant, Philadelphia: I agree with Dr. Poppen. When a pituitary adenoma has overflowed the sella turcica and invaded either anterior fossa, the surgical problem is serious and difficult. This constitutes an objection to irradiation, for this treatment may give a false sense of security. If a sudden diminution of vision occurs, operation may show frontal invasion by the adenoma. Preoperative glandular therapy would be excellent if an effective preparation of the pituitary gland were available to replace the reduced glandular activity. I am quite in accord with Dr. Peet on surgical indications. With rapid loss of field and decrease in visual acuity, surgical treatment gives a better chance for a greater recovery of vision than any other method of therapy. I was delighted to hear Dr. Hirsch, who did so much to develop and popularize the transsphenoidal approach to lesions of the pituitary gland. Given a certain type of tumor in a definite position, such as a cystic or semicystic tumor bulging down through the floor of the sella into the sphenoid bone, the transsphenoidal route is satisfactory. The modern antibiotic substances should eliminate one of the great dangers—leakage of cerebrospinal fluid and meningitis. The neurosurgeon abandoned this procedure for two reasons: first, only cystic or semicystic tumors could be evacuated by this attack, and second, the method offered technical difficulties. But in the hands of an expert in approaching the sphenoid region, Dr. Hirsch's excellent figures show what can be accomplished.

CHRONIC MYELOGENOUS LEUKEMIA

A Study of 129 Cases in Which Treatment Was With Radioactive Phosphorus

JOHN H. LAWRENCE, M.D.
R. LOWRY DOBSON, M.D.
B. V. A. LOW-BEER, M.D.
and
BRUCE R. BROWN, M.D.
Berkeley, Calif.

The treatment of chronic myelogenous leukemia with roentgen rays is a generally accepted procedure. For many years the local irradiation of the spleen, long bones and other areas of infiltration was the most widely used technic. During the past two decades the method of total body irradiation has gained favor, and many investigators now feel that better control of the disease can be achieved by this procedure. Although cure has not been possible with radiation therapy, studies such as those of Minot and co-workers[1] have shown that comfortable or useful life may be prolonged.

In 1936 it was shown experimentally that when radioactive phosphorus (P^{32}) in the form of sodium mono-hydrogen phosphate was injected into leukemic mice the sites of greatest concentration of the phosphorus atoms were the infiltrated bone marrow and infiltrated soft tissues such as lymph nodes, liver and spleen. Since P^{32} emits beta rays whose half value layer of tissue is about 2 mm., there was thus available a method of giving internal irradiation particularly to those areas infiltrated with leukemic cells.[2] The marrow is further irradiated by virtue of the phosphorus deposition in bone. It therefore seemed clear that if total body irradiation with roentgen rays was an effective form of therapy, then irradiation with P^{32} would prove at least as effective and possibly more so, in view of the decreased radiation dose delivered to normal tissues relative to the pathologic ones. During the past eleven years therapeutic and metabolic studies on 129 patients with chronic myelogenous leukemia have been carried out. Many of these studies have been previously reported, but this is the first attempt to study end results in a large series observed during the period 1936 to 1947.

PREPARATION OF RADIOPHOSPHORUS

The methods used in the preparation of P^{32} and its conversion into isotonic sodium mono-hydrogen phosphate have been previously described.[2e] Recently the

---

From the Divisions of Medical Physics, Medicine and Radiology, University of California.

Our chemist colleagues, Drs. E. H. Huffman, Robert Lilly and G. N. Iddings, have prepared the radioactive phosphorus solutions during the past two years.

Because of lack of space figure 1 has been omitted from The Journal. It is retained in the author's reprints, which the author will be pleased to send on request.

Recently this work has been supported in part by a grant from the International Cancer Research Foundation and by the Henry Stevens Kiersted Memorial Fund for Medical Research.

[1] Minot, G. R.; Buckman, T. E., and Isaacs, R.: Chronic Myelogenous Leukemia, Age Incidence, Duration, and Benefit Derived from Irradiation, J. A. M. A. **82:** *1489-1494* (May 10) 1924.

[2] (*a*) Lawrence, J. H.; Tuttle, L. W.; Scott, K. G., and Conner, C. L.: Studies on Neoplasms with the Aid of Radioactive Phosphorus: I. The Total Phosphorus Metabolism of Normal and Leukemic Mice, J. Clin. Investigation **19:** *267-271* (March) 1940. (*b*) Tuttle, L. W.; Erf, L. A., and Lawrence, J. H.: Studies on Neoplasms with the Aid of Radioactive Phosphorus: II. The Phosphorus Metabolism of the Nucleoprotein, Phospholipid and Acid Soluble Fractions of Normal and Leukemic Mice, ibid. **20:** *57-61* (Jan.) 1941. (*c*) Scott, K. G.; Graff, W. S., and Lawrence, J. H.: The Histologic and Therapeutic Effects of Radio-Phosphorus on Normal and Lymphomatous Mice, Am. J. Roentgenol. **55:** *44-54* (Jan.) 1946. (*d*) Lawrence, J. H.: Nuclear Physics and Therapy: Preliminary Report on a New Method for the Treatment of Leukemia and Polycythemia, Radiology **35:** *51-59* (July) 1940. (*e*) Low-Beer, B. V. A.; Lawrence, J. H., and Stone R. S.: The Therapeutic Use of Artificially Produced Radioactive Substances: Radiophosphorus, Radiostrontium, Radioiodine, with Special Reference to Leukemia and Allied Diseases, ibid. **39:** *573-597* (Nov.) 1942.

P^{32} has been derived not from the P^{31} (d,p) P^{32} reaction carried out in the cyclotron, but from the S^{32}(n,p)P^{32} reaction which occurs with high yield when ordinary sulfur is subjected to neutron bombardment in the atomic pile. The P^{32} in both cases is identical. The standard solution for several years was one containing 15 to 18 mg. of the salt per cubic centimeter at a p_H of approximately 7.4. During the past year carrier free P^{32} has been used, and the standard solution has been brought to isotonicity by the addition of sodium chloride. Essentially all of the phosphate present in this case is radioactive. The beta ray activity of the solution is standardized against a uranium beta ray source [3] in terms of microcurie radium equivalents. After sterilization it is ready for oral or intravenous administration.

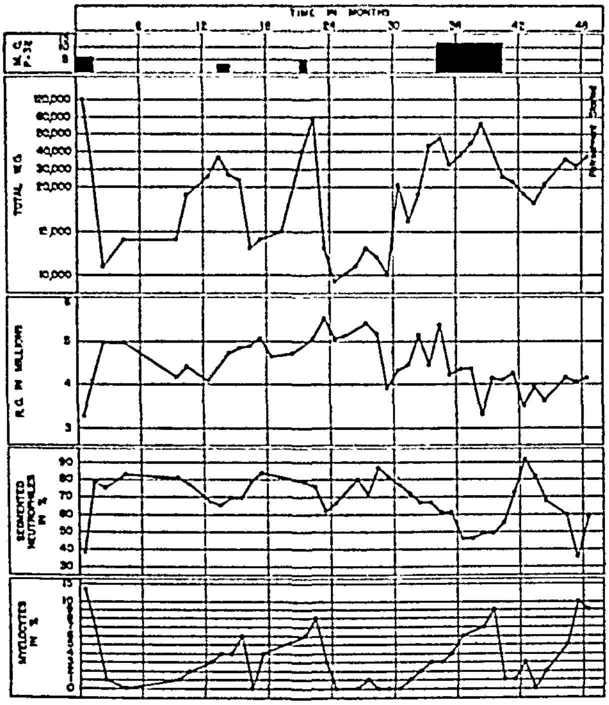


Fig. 2.—Hematologic course of I. J., a 44 year old female patient treated intermittently more than six years with P^{32}. There was a fall of the white cell count and rise of the red cell count accompanied by improvement in the differential after the initial eight week course of 6 millicuries of P^{32}. Satisfactory response followed the next two courses of therapy. The fourth course consisting of 12 millicuries given in six months was followed by less improvement. The disease had become more difficult to control.

DOSAGE

In view of the fact that P^{32} is not distributed uniformly throughout the body, the problem of determination of dose is not an easy one. Several considerations form the basis of this determination. First, experience has been gained in the past with the dosage of 200 kilovolt roentgen radiation given as total body radiation for diseases such as leukemia, Hodgkin's disease, lymphosarcoma, metastatic carcinoma and polycythemia vera.[4] In these studies total doses of 100 to 200 r have been given over a period of six to fifteen days and in some instances even larger doses—as high as 1,200 r over a period of several weeks. Second, it has been calculated that one microcurie of P^{32} per gram of tissue will give a total of approximately 40 r of radiation in a twenty-four hour period.[3] Thus after measuring the percentage of absorption, distribution and rate of excretion of P^{32}, one can roughly calculate the dose to the whole body. In comparing these values with doses given by high voltage roentgen radiation, it must be remembered that in the latter case there is not a uniform distribution of radiation because there is some absorption of the incoming rays by tissue. Third, studies of the lethal doses of P^{32} for mice and monkeys have supplied another guide post.[5] In general they have shown the lethal dose for a 30 Gm. mouse to be around 70 microcuries injected intraperitoneally, and for monkeys around 7 millicuries. The final and most important criteria for dosage determination, of course, are the clinical and hematologic effects, and these criteria apply here as in ordinary conventional radiation therapy.

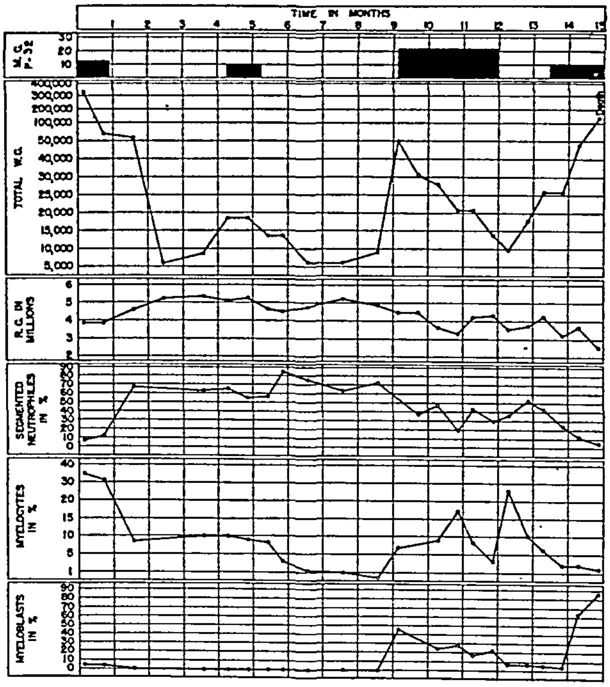


Fig. 3.—I. M., a woman patient aged 44 in whom terminal acute leukemia refractory to further P^{32} therapy developed despite previous satisfactory response. Such a picture with an increase in the number of blasts is not uncommon in chronic myelogenous leukemia, treated by other methods.

Recently Tobias has derived formulas relating the quantity of P^{32}, injected or ingested, to equivalent roentgens of whole body irradiation.[3] These expressions facilitate the conversion of phosphorus doses in millicuries to roentgen equivalents. In order to do this, he has taken into consideration the percentage of uptake, the rate of excretion and the rate of decay of P^{32}. The correctness of these formulas is dependent on the completeness of the data on absorption and excretion; unfortunately these studies on several patients have been extended for only a few days after administration of P^{32}, and one cannot be certain that after many days the excretion rates are the same as during this early period. These formulas are:

---

[3] Tobias, C. A.: The Standardization of the Measurement of Radioactive Phosphorus, to be published.

[4] (a) Craver, L. F., and MacComb, W. S.: Irradiation of the Entire Body, New York State J. Med. **34:** 249-255 (March 15) 1934. (b) Heublein's Method of Continuous Irradiation of the Entire Body for Generalized Neoplasms, Am. J. Roentgenol. **32:** 654-674 (Nov.) 1934. (c) Hunter, F. T.: "Spray X-Ray Therapy" in Polycythemia Vera and in Erythroblastic Anemia, New England J. Med. **214:** 1123-1127 (June 4) 1936. (d) Medinger, F. G., and Craver, L. F.: Total Body Irradiation with Review of Cases, Am. J. Roentgenol **48:** 651-671 (Nov.) 1942.

[5] Scott, K. G., and Lawrence, J. H.: Effect of Radio-Phosphorus on Blood of Monkeys, Proc. Soc. Exper. Biol. & Med. **48:** 155-158 (Oct.) 1941.

For oral administration, total dose in roentgens equivalent physical[6] $= N \times T \times 1.44 \times 0.38 \times \frac{40}{\text{weight in grams}}$;

For intravenous administration, total dose in roentgens equivalent physical[6] $= N \times T \times 1.44 \times 0.52 \times \frac{40}{\text{weight in grams}}$.

In the formulas N represents microcuries and T the half life. The figure 1.44 which appears in both expressions comes from the integration of the dose over infinite time. Absorption and excretion rates account for the factors of 0.38 and 0.52. The figure 40 is the initial dose rate as mentioned previously. Suppose a dose of 5 millicuries is administered to a patient weighing 60 Kg. If there were by chance uniform distribution of the P^{32} atoms throughout the body,[7] the total integrated irradiation would be as follows (after oral administration):

$$5{,}000 \times 14.3 \times 1.44 \times 0.38 \times \frac{40}{60{,}000} = 26 \text{ rep}$$

This irradiation would be the integrated dose spread over a period of many weeks and corrected for slow excretion and decay.

Thus with these guide posts combined with careful hematologic and clinical observation of the patient, the size and frequency of doses are worked out. In general, the doses have been from 1 to 2 millicuries once or twice a week, but doses equivalent to 40 millicuries intravenously over a period of seventy-two days have been given. As is true in the use of roentgen rays and radiation from radium administered locally or by spray, care must be taken with respect to the possibility of overdosage and its deleterious effects on normal cells of the body. In the case of P^{32}, roentgen rays and radium, the normal cells and body constituents of special importance are the megakaryocytes, platelets, normal white blood cells and red blood corpuscles.[8] The extreme variation in the response of patients to irradiation again evokes the clinical maxim that each patient must be individualized. In one patient 5 millicuries given in one or two doses will produce clinical and hematologic responses which are achieved in another patient only after 30 or more millicuries are administered over a period of several weeks. Either amount, in certain cases, may produce leukopenia or platelet depression which is not seen in other patients receiving even larger doses. In some of our earlier work oral doses which now seem extremely high were used. In one instance, as much as 70 millicuries was administered orally over a period of ninety days. In evaluating such a case, however, one must note that the retention of phosphate by the body is less after oral administration than after intravenous administration. At that time, also, the standard for measurement of activity called a microcurie was actually only 0.83 microcurie. Furthermore, the patient was taking iron orally, which caused much of the sodium radiophosphate to pass through the gastrointestinal tract. Also, the P^{32} given was in the form of several grams of sodium mono-hydrogen phosphate, so that the patient had diarrhea much of the time, with consequent poor absorption of the radiophosphate. Decreased absorption of radiophosphate also results when large amounts of inactive sodium mono-hydrogen phosphate are used as carrier.[9] All of these points must be considered when comparing doses and results.

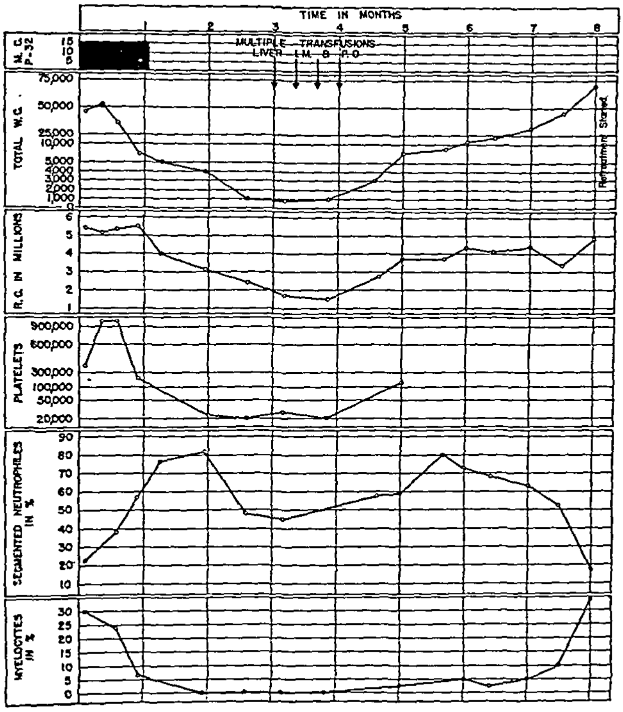


Fig. 4.—H. B., female patient aged 57 demonstrates danger of excessive depression of the bone marrow from overdosage with P^{32}. The patient recovered from this episode of marrow overdepression.

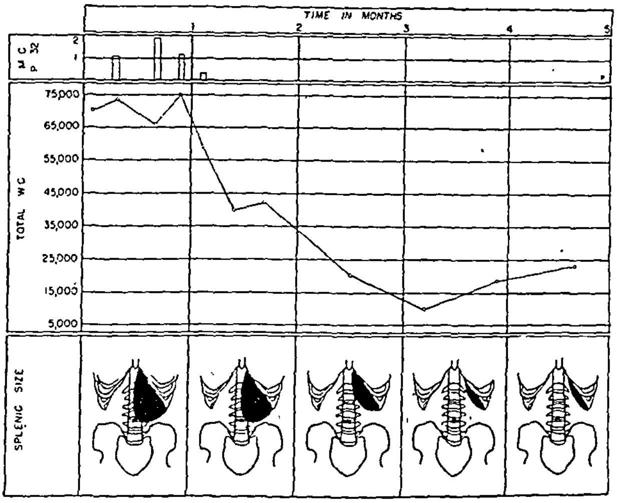


Fig. 5.—M. R., 57 year old woman. Definite improvement of the white cell count and size of the spleen following administration of a small amount of P^{32}.

---

[6] One roentgen equivalent physical (rep) is the dose of ionizing radiation which will deliver 83 ergs per gram.

[7] Actually of course distribution is never uniform; there is localization to a greater or lesser degree in infiltrated tissues and in bone. This relative localization is conditioned by size and frequency of dosage.

[8] Scott, Graff and Lawrence.[2c] Low-Beer, Lawrence and Stone.[2e] Craver and MacComb.[4b] Scott and Lawrence.[5] Hempelmann, L. A., Jr.; Reinhard, E. H.; Moore, C. V.; Bierbaum, O. S., and Moore, S.: Hematologic Complications of Therapy with Radioactive Phosphorus, J. Lab. & Clin. Med. **29:** 1020-1041 (Oct.) 1944.

[9] Erf, L. A.; Tuttle, L. W., and Scott, K. G.: Retention of Orally Administered Radio-Phosphorus by Mice, Proc. Soc. Exper. Biol. & Med. **45:** 652-657 (Nov.) 1940.

DESCRIPTION OF CASES

This study was made on 129 patients[10] who received P^{32} at the Crocker Clinic or the University of California Hospital before March 1, 1946. One hundred of the patients constitute the entire group of patients with chronic myelogenous leukemia seen in one of the clinics up to that date; the remaining 29 were seen in the other clinic, and there was no conscious attempt to select those patients who might respond most favorably. It is our impression that a larger percentage of this group of patients were in a more advanced stage of the disease than one would observe on the average. About one half of the patients had received previous courses of roentgen therapy before referral here or were treated with roentgen radiation by us prior to trial with P^{32}. Likewise, many of them had failed to respond to other forms of therapy and were in poor condition. Half of them were given P^{32} initially, and about one tenth of these later received roentgen irradiation if they had not responded well to P^{32} therapy or if we thought that local roentgen therapy was indicated in addition to P^{32}.

History and Associated Disease.—In studying the histories of these 129 patients, it was of interest to note that in only 2 cases was there a family history of blood dyscrasia. In one case both a brother and a sister had polycythemia; in the other a maternal aunt and her child had leukemia.

Seven of the patients gave a history of malaria. Two patients gave a history of tuberculosis, and in 1 of these pulmonary lesions were found at autopsy. In a third patient fibrocaseous pulmonary tuberculosis and tuberculosis in the adrenal gland were found at postmortem examination. In 3 more instances miliary tuberculosis occurred in patients giving no history of the disease. Holler[11] and Jaffé[12] have pointed out the importance of tuberculosis as a complication and have observed many cases of leukemia come to fatal terminations as a result of miliary tuberculosis.

Age of Onset and Sex.—The ages of this group of patients at onset of first symptoms varied from 10 to 71 years, the average being 40.3 years. The sex distribution was 57 per cent males (73 cases) and 43 per cent females (56 cases). These figures are almost precisely the same as those reported by Minot, Buckman, and Isaacs.[1]

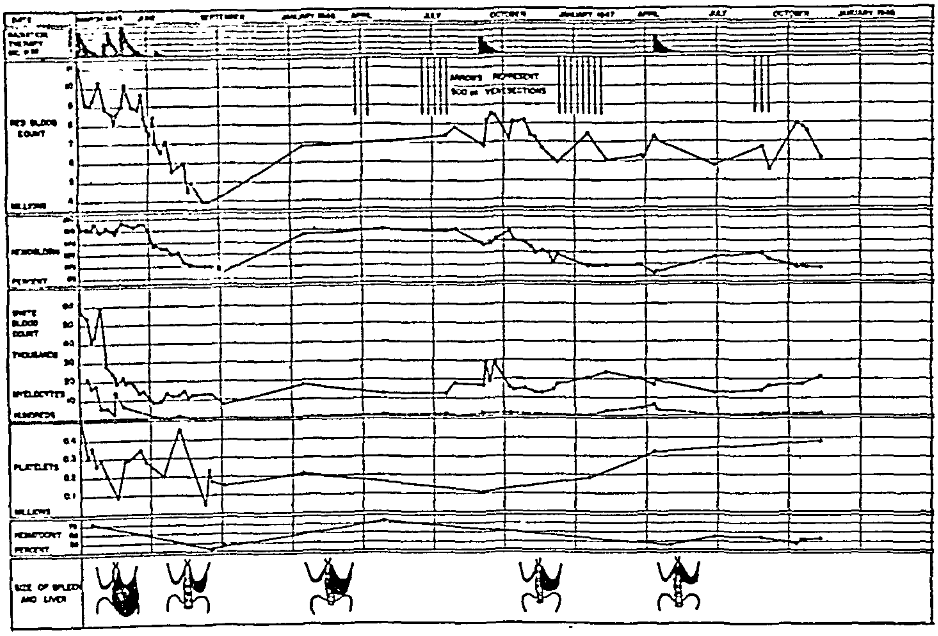


Fig. 6.—A., a man aged 33 with polycythemia vera and associated leukemia, showing a good response of the white cells to the P^{32} therapy.

TREATMENT

After the initial history, physical examination and hematologic study, each patient was seen at intervals varying from several times a week to once every several months, depending on the activity of his disease. More recently we have found that weekly visits for the more active patients are quite satisfactory in general, and the intervals may be prolonged as the disease comes under control. At each visit the patient is questioned regarding symptoms, a complete blood cell count is done, and frequent physical examinations are made as necessary to follow the progress of the disease. As a rule, a sternal marrow study is carried out before therapy is started, again after the completion of the first course, and when indicated thereafter.

The clinical criteria which we have used for treatment have been evidences of activity. Although the sternal marrow offers perhaps the truest indication of the patient's hematologic status, frequent repetition of this study seemed unnecessary.[13] The level and trend of the blood cell counts and the general clinical picture have been the determining factors in deciding when to administer radiophosphorus. In the general handling of these patients, we attempted to give enough P^{32} to bring about clinical and hematologic improvement without damaging the normal cells, careful watch being kept particularly of the megakaryocytes, platelets and the white and red blood cells. At one stage in our studies we attempted to bring the white blood cell counts to near normal and also attempted to arrive at normal, or near normal, differentials. This is no longer being done, for two reasons. First, by arriving at a normal differential and total count one does not insure against recurrence, and, second, such an attempt causes one to have more cases with overdepression of the marrow and decreased production of normal cells. Clinical improvement, with a feeling of increased well-being, improvement in the red cell count, decrease in size of the spleen, decreased perspiration, etc., are all evaluated, and as long as most of these various criteria tend in the right direction, therapy is withheld. On the average, most patients of normal size received from 1 to 2 millicuries per week over a period of from four to eight weeks. Such a course may then be repeated when signs and symptoms of returning activity occur. At one period during this study, a few of the patients were given preventive or prophylactic doses of P^{32} in the hope that recurrence of symptoms and signs would be prevented, but we obtained no evidence that this was an effective procedure. On the other hand, there have been a number of patients who have required therapy only every six to nine months and a few who have required it as infrequently as every one or two years.

---

[10] All patients treated with P^{32} are included and we have complete follow-up on 127 of these patients.

[11] Holler, G.: Beobachtung über die Wechselwirkung zwischen Leukämie und Tuberkulose in Menschlichen Organismus, Klin. Wchnschr. **10**: 1663-1666 (Sept. 5) 1931.

[12] Jaffé, R. H.: Tuberculosis and Leukemia, Am. Rev. Tuberc. **27**: 32-46 (Jan.) 1933.

[13] A detailed study of the marrow before, during and after therapy will be reported soon.

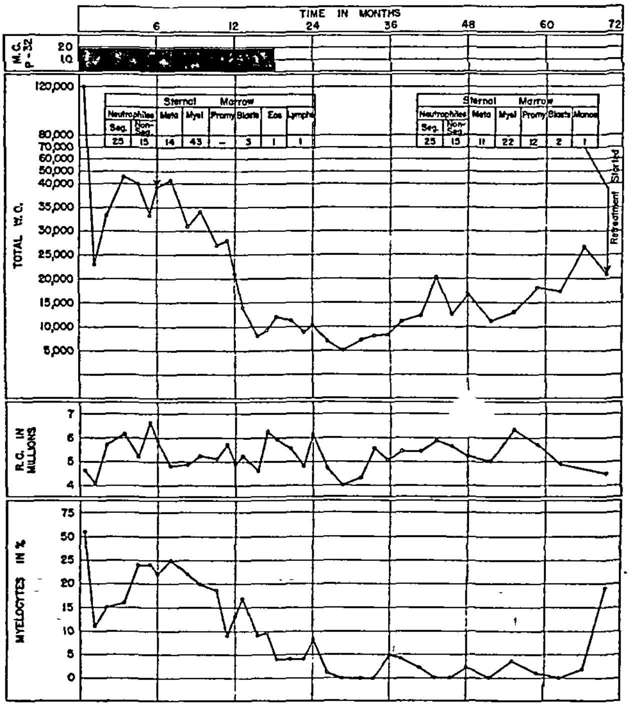


Fig. 7.—P. M., a girl aged 11, who had a long term remission following the initial treatment period of a year and a half. The dosage was small averaging only 1 millicurie a month. This patient has received no P^{32} or other therapy during the past two years, and is now in remission.

Response to Treatment.—In order to illustrate the various types of management and response of these patients to P^{32} several representative charts are presented. Charts 2, 3, 4, 5, 6 and 7 are self explanatory. Chart 8 summarizes the results in all cases, with particular reference to length of life after onset of the disease (3.7 years to date). Most of this life duration is useful life, in which normal activities can be carried on. Another analysis showed that there were no remarkable differences in duration of the disease with various ages of onset, but seemed to indicate that in this series patients showing symptoms in the third decade tend to live longer than those of the other ages.

COMMENT

A study of this series of patients again emphasizes the fact that it is not possible to show any remarkable lengthening of life after irradiation therapy whether it be given by local or total body roentgen radiation, with P^{32} internally, or by a combination of these technics. Final judgment on the relative value of P^{32} must await the evaluation of a much larger series, but it seems clear that no marked lengthening of life is going to result regardless of how the irradiation is given. It is common in the patient with chronic myelogenous leukemia for a picture of acute leukemia to develop terminally, with large numbers of blast cells in the blood smear. At least one third of our patients demonstrated this phenomenon. In order to depress the rapid growth of these young cells one also depresses normal cell production, causing leukopenia, thrombopenia or anemia. Although with P^{32} there is some selective irradiation, nevertheless it is limited. With P^{32} the marrow involved in a leukemic process is sprayed with radiation, but unfortunately such marrow is also the center of normal cell production. Therefore, in the final analysis one must rely on a greater radiosensitivity of leukemic cells, if irradiation is to be beneficial. Even early in the disease this margin of greater radiosensitivity, if present, is not often great, and in animals it has been impossible to demonstrate any greater sensitivity of leukemic over normal cells of the same type.[2c] Consequently, in patients with chronic myelogenous leukemia receiving P^{32}, it is common to see a high platelet count fall to normal or below normal levels, and it is not uncommon to observe a fall in the red cell count. Both of these effects may be the result of the disease or the result of irradiation, and indeed this constitutes one of the great problems in using and evaluating radiation therapy, whether it be local roentgen, spray roentgen or P^{32}. Sternal aspiration of the marrow may assist in deciding, but even in the presence of hyperplastic marrow, one cannot be sure that the platelet, red cell or white cell depression is not due to irradiation. We have tended to use extremely small doses or none in those patients having less than 2,500,000 red cells per cubic millimeter, and instead use local roentgen radiation to the spleen or other areas.

In studying any large series of patients with chronic myelogenous leukemia, one finds cases with extremely short duration of life and others with a relatively long duration of life. As noted in chart 8, that is true of this series, also. In the total series of 129 patients, 21 are alive, and of these, 17 are alive four or more years after onset and 2 are alive nine or more years after onset. In examining these two latter groups, it is difficult to correlate dosage with longevity, although it is true that most of them have responded to relatively small and infrequently administered doses. On the

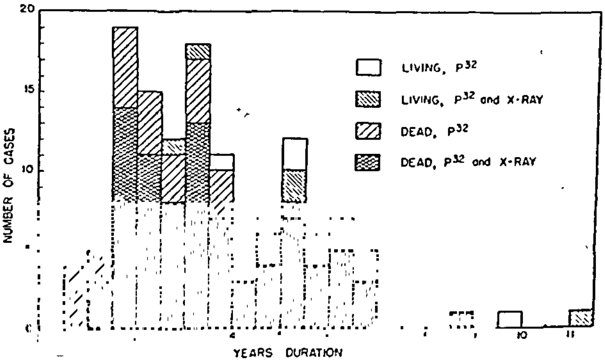


Fig. 8.—Chronic myelogenous leukemia with radiation therapy. The patient living eleven years after onset received only P^{32} until this past year, when some local roentgen radiation to the spleen has been administered. The average duration to date is 3.7 years.

other hand, the larger doses given to some patients have usually been given only after they failed to respond clinically or hematologically to the smaller doses. These patients who are living after several years encourage one, however, to attempt to devise combinations of size and timing of doses of P^{32}, or roentgen rays and P^{32}, which will be most advantageous. It is of interest to note that of late we have tended in some cases to combine local roentgen radiation to the spleen with a background of total body irradiation by intravenous P^{32} in small doses.

It should be emphasized that although this study of irradiated patients demonstrates our inability to control this disease in all instances, nevertheless it does show that the major portion of life duration is useful, and when the follow-up of this series is completed during the coming years, the average duration of life will be somewhat longer than in previously reported series.

In a total of 110 patients dying of leukemia, postmortem examination was obtained in 36. Many patients died in other hospitals, out of contact with us. A number of them had received roentgen treatment prior to death. The postmortem findings were usually those seen in terminal myelogenous leukemia with generalized infiltration of the usual organs and tissues. As illustrated in Figure 4, we have had several patients in which the normal cells (platelets, red cells and normal white cells) have been definitely affected adversely by irradiation, but in the thirty-six postmortem examinations the pathologist felt that the marrow was depressed to the extent of aplastic anemia in but 1 case. However, irradiation can influence the function of cells without obvious morphologic change, so this is not of great significance. Also there were 2 other patients with anemia and leukopenia terminally on whom no postmortem examinations were performed but who had, hematologically, the picture of severe marrow depression. Such marrow depression occurred chiefly in cases which were terminal, in which larger doses were administered as a last resort and combined with transfusions. It would seem that these adverse effects on normal cells with larger doses would clearly rule out the possibility of destroying all leukemic cells by means of irradiation. Again we arrive at the conclusion that palliation is all that can be achieved by radiation, and we must depend more on the resistance of the patient to the disease for the unusually favorable responses. It is of interest to point out that, in this series of patients, some have been given radioactive phosphorus orally or intravenously, intermittently during periods as long as five to ten years, and this is true of the chronic lymphatic series to be reported later. In certain patients the total integrated dose has amounted to as much as 75 millicuries in five years. In none of these has there been evidence of the induction of other neoplasms such as bone tumors. Studies by Brues and co-workers [14] have shown that after large doses of radioactive strontium, osteogenic sarcomas developed in mice. The doses of P^{32} used clinically are probably considerably below the "neoplasm-inducing range of dosage."

At the present time, the two definite advantages of P^{32} would seem to lie in the ease with which it provides generalized irradiation and the lack of any radiation sickness. On these points all workers seem to agree.[15] It is hoped also that further work and the passage of time will show that comfortable life can be prolonged somewhat more than the present figures indicate. Also during the past six years, studies in this laboratory with several radioactive colloids indicate that in certain cases it will be possible to deliver relatively more irradiation to the pathologic tissues as compared to the normal ones.[16] Hahn and Sheppard have recently suggested manganese colloids in a preliminary report.[17] Since there are 21 patients still living, the present figure for average length of life in this series will eventually be somewhat larger.

SUMMARY AND CONCLUSIONS

In a study of 129 patients with chronic myelogenous leukemia treated with P^{32} alone or combined with roentgen rays it was found that comfortable life is prolonged. The somewhat selective irradiation provided by P^{32} has not resulted in any marked improvement in the duration of life in this disease. It does provide a convenient method of giving generalized irradiation, and there is the added advantage of absence of radiation sickness. The fact that 33 patients in this series have lived or are living five or more years after the onset of their symptoms is a reminder that many patients with chronic leukemia have many years of relatively comfortable life, and it is not possible to predict which these will be when they are first seen. Although these studies indicate that P^{32} may be the best therapeutic agent in the treatment of chronic myelogenous leukemia, they also add further emphasis to the need for a search for methods other than irradiation for the ultimate control of this baffling disease.

---

[14] Brues, A. M.; Lisco, H., and Finkel, M.: Carcinogenic Action of Some Substances Which May Be a Problem in Certain Future Industries, Atomic Energy Commission Declassified Document no. MDDC 145.

[15] Reinhard, E. H.; Moore, C. V.; Bierbaum, O. S., and Moore, S.: Radioactive Phosphorus as a Therapeutic Agent, J. Lab. & Clin. Med. **31**:107-218 (Feb.) 1946. Lawrence, J. H.: Observations on the Nature and Treatment of Leukemia and Allied Diseases (Edwin R. Kretschmer Memorial Lecture) Proc. Inst. Med. Chicago **14**: 30-49 (Feb. 15) 1942. Low-Beer, Lawrence and Stone.[26]

[16] Jones, H. B.; Dougherty, E. C., and Lawrence, J. H.: The Effect of High Levels of Beta-Radiation in the Liver and Spleen, to be published. *Dobson, E. L.; Gofman, J. W.; Jones, H. B.;* Kelly, L., and Walker, L.: Studies with Colloids Containing Radioisotopes of Yttrium, Zirconium, Columbium, and Lanthanum: II. The Controlled Selective Localization of Radioisotopes of Yttrium, Zirconium and Columbium in the Bone Marrow, Liver and Spleen, to be published.

[17] Hahn, P. F., and Sheppard, C. W. Selective Radiation Obtained by Intravenous Administration of Colloidal Radioactive Isotopes in Diseases of Lymphoid System, South. M. J. **39**: 558-562, 1946.

His Father Was a Blacksmith.—Richard Dewey, one of the most distinguished American psychiatrists of his time, was born the son of a village blacksmith and gristmill owner, in 1845 at Forestville, N. Y. His major contribution to psychiatry was made in 1879 on the assumption of his duties as the first superintendent of the new state hospital at Kankakee, Ill. Here he introduced the so-called "cottage plan," whereby mentally ill patients were no longer indiscriminately herded together but were separated into small groups and housed in separate buildings. This facilitated treatment and secured for the patients many of the advantages of community life.

Among Dr. Dewey's literary activities may be mentioned his collaboration with five other American and Canadian psychiatrists in the writing of the monumental four volume history, "The Institutional Care of the Insane in the United States and Canada," which was published in 1916-1917, and his editorship from 1894 to 1897 of the *American Journal of Insanity* (now the *American Journal of Psychiatry*).—Rosen, George, and Caspari-Rosen, Beate: 400 Years of a Doctor's Life, New York, Schuman's, 1947.

CONGENITAL ANOMALIES OF THE GALLBLADDER

BRUCE C. LOCKWOOD, M.D.
Detroit

Until cholecystography became a common diagnostic procedure developmental defects of the gallbladder were considered to be rare anatomic curiosities and were reported only by anatomists. They are now not uncommonly found. Their clinical significance has been disputed.

Considering the embryologic development of the region, one wonders that such defects are not more frequent. The biliary tract arises in the human embryo as a diverticulum from the ventral surface of the foregut just cranial to the yolk sac. Two solid buds of cells form the right and left lobes of the liver while the original elongated diverticulum forms the hepatic and common ducts. The gallbladder develops as a smaller bud of cells off this same diverticulum, and when the embryo is 15 mm. long it is represented as a long solid tube lying in its hepatic fossa. Later it develops a lumen by a process described as vacuolization, which takes place simultaneously in different parts of the then solid gallbladder bud. Fusion of these vacuoles forms the normal gallbladder cavity. Irregularity in the formation and fusion of these vacuoles accounts for deformities such as aberrant valves of Heister, strictures, hourglass shape or absence of the ducts or gallbladder, while a splitting of the bud may cause a double or a bilobate gallbladder or a diverticulum. Abnormalities in the development of the original diverticulum cause defects of the bile duct and of the liver.[1]

TABLE 1.—*Classification of Congenital Anomalies of the Gallbladder and Ducts*

1—Anomalies of the form of the gallbladder
    Phrygian cap, liberty cap or folded fundus type
    Fish hook type
    Partitioned type
    Bilobed
    Diverticulum
2—Anomalies of the number
    Absent
    Rudimentary
    Double
3—Anomalies of the position of the gallbladder
    Intrahepatic
    Floating or ptotic
    Left sided
        On under surface of left lobe
        Situs transversus
4—Anomalies of cystic duct
    Absent
    Stricture
    Reduplication
    Abnormal termination into stomach
5—Anomalies of hepatic and common ducts
    Absence
    Stricture
    Reduplication
    Abnormal termination into stomach
6—Anomalies of hepatic and cystic arteries
    Double cystic artery
    Abnormal relation of hepatic artery to cystic duct

In table 1 is shown a classification of the types of malformations of the gallbladder and ducts which have been found to occur.

The most common anomaly of the biliary tract is the Phrygian cap or the folded fundus type of gallbladder. This condition is due to a defect in the vacuolization of the solid gallbladder bud, in which a partial septum or septums remain in the lumen. It is this type of deformity with which this report is chiefly concerned.

Cholecystography is the method most likely to reveal such congenital deformities. I am convinced that in most cases the deformity has been overlooked by surgeons, because in the usual operative procedure the application of forceps on the gallbladder with traction obliterates the external appearance of the deformity. Furthermore, some of these defects are almost totally concealed inside the gallbladder, and the external appearance is fairly normal. The mind of the surgeon is usually chiefly occupied with the technical procedure on hand. It is also probable that most of these deformities are overlooked in the pathologic laboratory because the specimen is usually handled by a technician interested only in excising a small piece for microscopic examination. The condition is also evidently missed or not reported at autopsies.

TABLE 2.—*Data on Forty-One Patients Showing Cholecystographic Evidence of Congenital Anomaly of the Gallbladder*

Total number of cholecystograms for a six year period—1,464
Number showing anomalies of the gallbladder—41, or 2.8 per cent
    Males—13, or 32 per cent; females—28, or 68 per cent
    Average age—43
Dye concentration—Normal in 14, or 34 per cent, and below normal in 27, or 66 per cent
Fat response—Normal in 11, or 27 per cent, and below normal in 30, or 73 per cent
Number showing stones—6, or 14 per cent
Patients in whom symptoms were considered caused by the gallbladder—13, or 32 per cent
Patients who originally had normal function of the gallbladder but in whom definite gallbladder trouble later developed—8, or 19 per cent
Total number having gallbladder trouble to date—21, or 51 per cent
Number operated on to date—10, or 24 per cent

Attention was first called to the folded fundus type of gallbladder by the anatomist Bartel[2] in Germany, who in 1916 had collected forty-three such specimens at autopsy. He gave it the name of "Phrygian cap," referring to the headgear worn by the people of Phrygia, an ancient country of Asia. A conical cap with the top turned forward was then an emblem of liberty or republicanism. The goddess of liberty is still occasionally pictured wearing such a cap.

After the discovery of the Graham-Cole[3] dye method of roentgen examination of the gallbladder in 1925 a number of cases were found and reported. Most surgeons considered the condition to be a congenital pathologic one of definite clinical significance and an indication for cholecystectomy.[4] Boyden[1] in 1935, however, reported a careful study of the condition from an embryologic and anatomic standpoint and concluded that it is a congenital variation probably of no significance. He reported a series of one hundred and sixty-five cholecystographic studies on normal persons in which a Phrygian cap deformity was found in 3.6 per cent.

Meyer, Carter and Meeker[5] in 1937 also studied the condition. They found that in a series of one

---

From the Department of Internal Medicine, Harper Hospital.

Read before the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

[1] Boyden, E. A.: The Phrygian Cap in Cholecystography, Am. J. Roentgenol. **33**: 589 (May) 1935.

[2] Bartel, J.: Cholelithiasis und Korperkonstitution, Frankfurt. Ztschr. f. Path. **19**: 206, 1916.

[3] Graham, E. A.; Cole, W. H., and Copher, S. H.: Cholecystography: Experimental and Clinical Study, J. A. M. A. **84**: 14 (Jan. 3) 1925.

[4] Bronner, H., and others, cited by Boyden.[1] Levine, S.: Congenital Malformations of the Gallbladder, Arch. Int. Med. **41**: 198 (Feb.) 1928.

[5] Meyer, W. H.; Carter, R. F., and Meeker, L. H.: The Phrygian Cap Deformity of the Gall Bladder, Am. J. Roentgenol. **37**: 786 (June) 1937.

hundred gallbladders removed at operation for cholecystitis the deformity was seen in 6 per cent. They reviewed one thousand routine cholecystograms and found that in about 4 per cent septal divisions corresponding to the Phrygian cap deformity were seen.

In table 2 is shown a résumé of the pertinent data regarding the group of 41 patients who showed definite cholecystographic evidence of congenital deformities of the gallbladder. These patients were among a series of 1,464 office patients who because of gastrointestinal symptoms were subjected to routine roentgen examination of the gastrointestinal tract and of the gallbladder as well as to clinical and laboratory examination. It will be noted that the incidence of deformities in this series is 2.8 per cent, a figure slightly below that reported by Boyden and by Meyer, Carter and Meeker. The ratio of females to males was about 2 to 1. The average age was 43 years. The response to dye concentration tests and fat meal tests was found to be below normal in over two thirds of the cases, and stones were found in 14 per cent.

In 32 per cent of this series it was originally considered, after careful complete examination, that the patients' symptoms were due to gallbladder disease. In another 19 per cent symptoms and roentgenologic signs of gallbladder trouble subsequently developed. Thus 51 per cent of this series of 41 patients showing cholecystographic evidence of congenital anomalies of the gallbladder also had definite cholecystitis, with 14 per cent exhibiting calculi.

There are other forms of abnormal development of the biliary tract, as shown in table 1. It has been estimated that about 10 per cent of human beings have some anomaly of the biliary tract.[6] Total absence of the gallbladder is rare, as is rudimentary gallbladder, the incidence at autopsy being about 0.03 per cent.[7] Double gallbladder is also rare; Boyden[8] found it in only 5 of 19,000 subjects. Complete intrahepatic gallbladder is rare although a gallbladder with a fundus partially buried in the hepatic structure is occasionally encountered. An instance of this is included in the series here reported. Low, pelvic or ptotic gallbladders are most common. Gallbladders situated on the under surface of the left lobe of the liver, though rare, have been reported by several observers.[9]

Congenital variations in the bile ducts and in blood vessels are not infrequently encountered at operation,[10] and every surgeon should be alert to the possibility of their presence and trained to cope with their existence.

SUMMARY AND CONCLUSIONS

1. This study represents a survey of consecutive cholecystographic studies on 1,464 patients, in 41, or 2.8 per cent, of whom there was evidence of congenital deformity.

2. In about 70 per cent of this group of 41 patients, observed over a period of six months to six years, there was suggestive evidence of disease of the gallbladder, and in 51 per cent there was definite evidence. Calculi occurred in 14 per cent. Operation was necessary in 24 per cent.

3. Congenital anomalies of the gallbladder interfere with its normal function in a great majority of cases and are therefore of definite clinical significance.

4. For patients with such anomalies a medical routine to promote normal function of the liver and gallbladder and especially to avoid gallbladder stasis should be followed.

5. Surgical treatment is indicated for calculi and for a nonfunctioning gallbladder with persistent symptoms.

---

[6] Mentzer, S. H.: Anomalous Bile Ducts in Man, Based on a Study of Comparative Anatomy, J. A. M. A. **93:** 1273 (Oct. 26) 1929.

[7] Feldman, M.: Clinical Roentgenology of the Digestive Tract, Baltimore, Williams & Wilkins Company, 1945.

[8] Boyden, E. A.: Accessory Gall-Bladder, Am. J. Anat. **38:** 177 (Nov.) 1926.

[9] Gross, R. E.: Congenital Anomalies of the Gallbladder, Arch. Surg. **32:** 131 (Jan.) 1936.

[10] Flint, E. R.: Anomalies of Cystic and Hepatic Arteries and Bile Ducts, Brit. J. Surg. **10:** 509 (July) 1922. Lurge, A.: Topography of Extrahepatic Biliary Passages, Ann. Surg. **105:** 161 (Feb.) 1937. Osler, G. F., and Dow, R. S.: Variations and Anomalies of the Biliary Duct System and Its Associated Blood Supply, West. J. Surg. **53:** 316 (Sept.) 1945.

PRIMARY CARCINOMA OF THE SEMINAL VESICLES

Differentiation From Extrarectal and Rectal Carcinoma and Comparative Study

LOWRAIN E. McCREA
Philadelphia

Primary carcinoma of the seminal vesicles and tumors of the rectal shelf or of Blumer's shelf may offer confusion in the differential diagnosis. The relative frequency with which extrarectal metastatic deposits and primary extrarectal growths are encountered is a subject that has received little attention from the profession until recent years.

The differential diagnosis of the two conditions is highly important and constitutes the primary step in affording relief, if possible, to the patients suffering from them. Extrarectal carcinoma is frequently confused with primary rectal carcinoma, although a wide chasm of symptoms and physical findings exists between the two conditions. Because of their importance clinically and because of their physical properties, considerable attention has been focused on rectal tumors and on Blumer's shelf tumors by the proctologic surgeons. There is little in the literature on primary carcinoma of the seminal vesicles. The site, contour and palpable qualities of extrarectal metastatic malignant growths and of primary carcinoma of the seminal vesicles are similar and frequently offer considerable difficulty in differentiation. So similar are these lesions that it is frequently impossible to differentiate between them unless biopsy is done.

Extrarectal metastatic malignant growths are observed in the male in the rectovesical pouch or cul-de-sac. The rectovesical pouch is formed as the peritoneum is reflected from the bladder onto the upper two thirds of the anterior and lateral aspects of the rectum. The pouch thus formed descends to a point within 1 cm. of the base of the prostate. When the rectum is filled or the bladder distended, two peritoneal folds may be found passing from the lateral walls of the bladder to the rectum. These peritoneal folds or rectovesical ligaments form the lateral boundaries of the pelvic peritoneal or rectovesical cul-de-sac. Metastatic deposits of appreciable size in the cul-de-sac produce a ledge known as the rectal shelf which is palpated just superior to the prostate, which is the normal site of the seminal vesicles. Attention was first called to extrarectal tumors in 1895

Read before the Section on Urology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

by Strauss,[1] who reported a case of gastric carcinoma with metastasis to the pouch of Douglas. Blumer in 1909[2] so classically described extrarectal metastatic lesions that they are spoken of as Blumer's shelf tumors. Bacon in 1939,[3] in reviewing the literature, found 41 cases and reported 17 of his own. In his series Bacon[4] observed that the primary growths were found most frequently in the stomach. Some of the patients were without gastric symptoms, but symptoms were produced by the metastatic growths. Buie[5] in 1941 reviewed 254 cases of extrarectal tumors observed in a five year period and found in 63 per cent of his cases that the cause of the extrarectal mass or rectal shelf varied. He observed that the primary growths occurred as carcinoma of the stomach in 30 cases, endometriosis and adenomyosis in 30 cases, carcinoma of the sigmoid in 26 cases, diverticulitis in 26 cases, pelvic inflammatory disease in 22 cases, carcinoma of the ovary in 14 cases and carcinoma of the prostate in 13 cases. In the remaining 37 per cent of his cases there were a great variety of pathologic processes including carcinoma of the breast, giant cell tumor of the bone, lymphosarcoma, regional ileitis, carcinoma of the cervix, cyst of the ovary, retroversion of the uterus, ruptured appendix, perforated peptic ulcer, carcinoma of the seminal vesicles, hypertrophy of the prostate, epithelioma of the bladder and carcinoma and sarcoma of the rectovaginal septum. It is noteworthy that in Buie's series the most common cause of an extrarectal mass or of a tumor of the rectal shelf among men were lesions of the gastrointestinal tract, while lesions of the genital system were observed as the common cause of such tumors in women.

An infiltrative carcinomatous mass palpated in the area usually considered as the rectal shelf may readily be mistaken for a primary tumor of the seminal vesicles. It has been repeatedly shown that tumors of the rectal shelf are metastatic lesions and that the greatest incidence of occurrence is found in carcinoma of the stomach. It is frequent that patients with tumors of the rectal shelf present a history of gastric complaints while persons with primary carcinoma of the seminal vesicles frequently present a history of urinary difficulty and hematuria. It is considered that the greatest diagnostic point of differentiation between extrarectal and rectal carcinoma is the mobility of the rectal mucosa over the mass in extrarectal tumors. It has been shown that such tumors not infrequently invade the rectal mucosa and become fixed tumors. Primary carcinoma of the seminal vesicles belongs to the category of extrarectal tumors because of its site and palpable qualities. The occurrence of this tumor, although uncommon, is not believed to be as rare as the sparsity of the reported cases in the literature would suggest. It is further believed that many of the tumors diagnosed as Blumer's shelf tumors were in reality primary carcinomas of the seminal vesicles. The first case of primary carcinoma of the seminal vesicles to be reported was that of Berger[6] in 1871. In 1942, in a review of the literature,[7] I found 19 cases and reported 2 of my own. Since that time mention has been made in the literature of 2 more cases by Morales, Alcalde, Obrador and Perrin.[8] Another proved case is herein reported, bringing the total number of reported cases of primary carcinoma of the seminal vesicles to 24. In all 3 cases personally observed three symptoms were constant, namely, frequency of urination, difficulty of urination and hematuria. In 2 of the cases catheterization was necessary, while in the third case cystotomy was done to relieve urinary difficulty. The hematuria as observed was not frank bleeding but rather was a mixture of urine, blood and blood clots together with masses of cellular debris.

CASE 3.—H. M., a white man, 38 years of age, was admitted to the hospital on Feb. 9, 1946, in a state of acute urinary retention. There was a history of a two week period of difficulty and frequency of urination and hematuria. Rectal examination revealed a large mass above the prostate. A definite sulcus existed between the prostate and the irregularly shaped, elastic, fixed mass. The rectal mucosa was smooth and freely movable. Cystoscopic examination revealed a markedly elevated trigone. The ureteral orifices were normal in contour but widely separated. A craggy, irregularly shaped tumor mass was visible on the trigone. The blood urea nitrogen was 47.6 mg. per hundred cubic centimeters.

On March 5 biopsy was performed, and the report was as follows: "The specimen consists of bits of bowel wall lined by glandular mucosa which is ulcerated at various points and engaged in a marked inflammatory reaction. Ill formed glands are seen. In addition there are darker-staining, less differentiated cells. The same picture can be found in the wall beneath a benign mucosa."

On March 10 cystotomy drainage was instituted, and a biopsy of material from the bladder wall resulted in the following report: "Section of this piece of tissue shows it to consist of a more or less solid mass of undifferentiated tumor cells showing unquestionable malignant change (fig. 1). In some regions there is a tendency for papillary proliferation. Necrosis is prominent. The cells are not characteristic of those which arise in the acini of the prostate. It is impossible to say that this is not rising in the transitional epithelium of bladder mucosa. The structure of the cells, however, is compatible with a malignant tumor of the seminal vesicles. The diagnosis is carcinoma, primary in the seminal vesicles."

On April 14 the patient died. Autopsy revealed generalized metastasis.

The two following cases were originally reported in 1942 but are reviewed here for comparison.

CASE 1.—W. L. a white man 34 years of age, complained of an attack of hematuria and an intermittent dull pain over the kidneys and the bladder region three weeks before he was first observed, on Jan. 20, 1940. When first seen the voided urine was cloudy but not bloody in appearance. Microscopically, 30 to 40 red blood cells and numerous clumps of leukocytes per high power field were present. On rectal examination a hard indurated fixed mass was palpable above the prostate. The patient refused to undergo further examination.

On Sept. 4, 1941, the patient complained of frequency of urination, dysuria, nocturia and hematuria. Cystoscopic examination revealed a greatly elevated bladder floor. The mucosa was somewhat congested and presented a coarsely granular appearance. Extensive areas of bullous edema which obscured the ureteral orifices were present.

---

[1] Strauss, H.: Zur genaueren Kenntniss und Würdigung einer im milchsäurehaltigen Magensaft massenhaft vorkommenden Bakterienart, Ztschr. f. klin. Med. **28:** 578, 1 95.

[2] Blumer, G.: The Rectal Shelf: A Neglected Rectal Sign of Value in Diagnosis of Obscure Malignant and Inflammatory Disease Within the Abdomen, Albany M. Ann. **30:** 361, 1909.

[3] Bacon, H. E.: Extrarectal Metastatic Growths from Upper Abdominal and Mammary Cancer, J. A. M. A. **112:** 898 (March 4) 1939.

[4] Bacon, H. E.: Extrarectal Metastatic Malignancy Simulating Primary Carcinoma of the Rectum, New York J. Med. **39:** 2267, 1939.

[5] Buie, L.: Extrarectal Masses Caused by Tumors of the Recto-Uterine or Rectovesical Space, J. A. M. A. **117:** 167 (July 19) 1941.

[6] Berger, P.: Cancer des vesicules seminales de la prostate metastase, Bull. Soc. anat. de Paris **46:** 222, 1871.

[7] McCrea, L. E.: Primary Carcinoma of the Seminal Vesicles: Report of Two Cases; Review of the Literature, Urol. & Cutan. Rev. **46:** 700, 1942.

[8] Morales, L.; Alcalde, S., Obrador and Perrin, T. G.: Primary Adenocarcinoma of the Seminal Vesicle with Cranial Metastasis, An. méd. **4:** 3, 1943.

On October 7 material was taken for biopsy, with the patient under spinal anesthesia. A specimen was taken from the bladder and one from the rectum. The pathologic report was as follows: "The biopsy of the bladder reveals mild hyperplasia of the mucosal covering, with retial formation. The cells making up this layer have been cut in such a fashion that they appear to group themselves around a central space. They are adult in type and orderly in arrangement and show no attempt at invasion. The subepithelial layer reveals edema, congestion and sparse plasma cell infiltration. There is a focal aggregation of lymphocytes in one area. The remainder of the wall exhibits fibrosis and vascular thickening (fig. 2). The specimen labeled 'rectum' presents a fibrofatty and muscular tissue in which are caught large nodules of acinar structures which have the arrangement and branching effect of seminal vesicle tissue. The lining cells are tall and cuboidal and present variation in size, shape and staining quality. There are macular areas of recent hemorrhage. No mucosal covering is visualized. From the cytologic detail and the arrangement of the neoplastic cells, we feel that this lesion represents a low grade adenocarcinoma primary in the seminal vesicles. The diagnosis is adenocarcinoma, grade 2, which is primary in the seminal vesicles, and chronic cystitis."

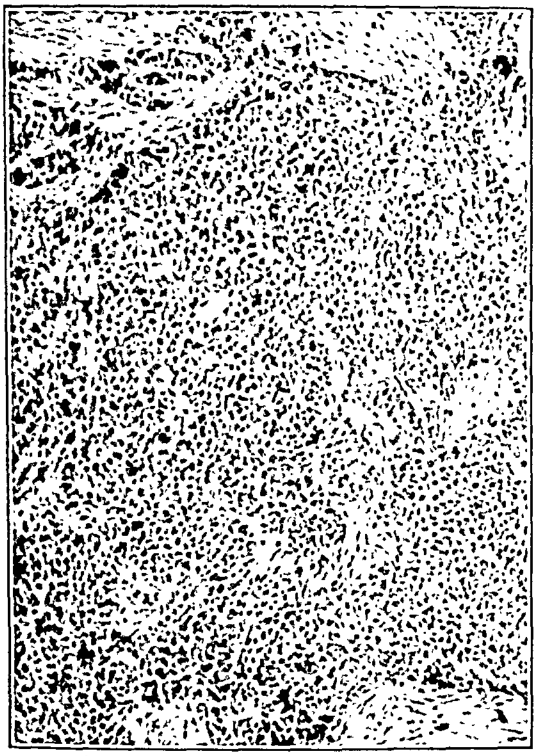


Fig. 1.—Photomicrograph showing tumor consisting of relatively undifferentiated solid masses of cells. Note the large-sized nuclei with prominent chromatin and also the numerous mitotic figures. Little stroma is seen.

Because of inoperability, the patient was subjected to roentgen therapy.

On May 21, 1942, a large necrotic mass of tissue was passed through the urethra, which was followed by increased frequency of urination, with smarting and burning.

On May 22 cystoscopy revealed extensive bullous edema and an infiltrative mass which extended across the trigone.

By August 2 there was considerable loss of weight, and the patient complained of loss of sleep due to considerable frequency of urination and to constant dull pain in the perineum. Rectal examination revealed diminution in the size of the indurated fixed mass above the prostate.

On December 18 the patient was admitted to the hospital in a uremic state, and he died shortly after. Autopsy revealed a large tumor mass involving the seminal vesicles and infiltrating the trigone of the bladder (fig. 3).

Case 2.—W. M., a white man 52 years of age, was admitted to the hospital on Aug. 18, 1941. The history revealed marked loss of weight during the preceding four months, increased bowel movements (ten to twelve watery stools a day) and difficult urination. Rectal examination revealed a mass beginning about 2.5 cm. above the anterior anal margin, extending backward and compressing the rectum against the sacrum. The examining finger could be introduced beyond the mass. The mass was irregular in shape, elastic but definitely fixed and covered by smooth mucous membrane. The cystoscope was introduced with difficulty because of the extreme angle necessary to allow the beak of the instrument to pass over the markedly elevated prostatic urethra and trigone. The bladder mucosa was normal in appearance. The ureteral orifices were normally placed and readily visualized. There was no evidence of tumorous growth within the bladder.

The report of a biopsy of rectal tissue was as follows: "There is one small piece of bowel mucosa which shows chronic inflammatory changes. Deep in this there are fragments of necrotic granulation tissue and a few smaller pieces of papillary adenocarcinoma. The epithelial cells are tall and sometimes goblet shaped. They are apparently mucin secreting. The grade of malignancy is not particularly high. The question of primary source arises. Since this tumor is papillary it probably does not arise from the prostate, and since it is of an acinar pattern it probably does not arise in the bladder mucosa. Since the rectal mucosa appears to be free of tumor we must assume that the tumor springs from the seminal vesicles. The diagnosis is papillary adenocarcinoma, grade 2, of the seminal vesicles."

On August 21 colostomy was done by Dr. Harry E. Bacon because of an imminent total obstruction of the bowel. At the time of operation a mass approximately the size of a grapefruit was noted. The mass practically filled the pelvis. The lower limit could not be determined, but it extended well below the promontory of the sacrum. It was causing almost total obstruction to the sigmoid and was fixed to the bladder.

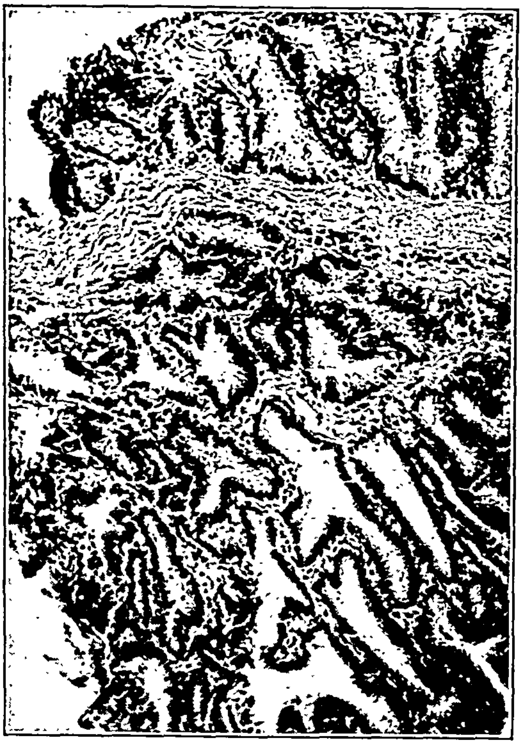


Fig. 2.—Photomicrograph showing acinar structures which have the arrangement and branching effect of the seminal vesicles. The living cells are cuboidal and show definite variations in size, shape and staining qualities.

On Jan. 12, 1942, the patient succumbed, having continued his downward course after the colostomy. Autopsy was not permitted.

INTERPRETATIONS OF PHYSICAL FINDINGS IN CARCINOMA OF THE SEMINAL VESICLES

Cystoscopy in all 3 instances revealed a markedly elevated trigone and floor of the bladder. In 2 instances a distinct craggy mass infiltrating that area could be seen. Rectal examination revealed a mass above the prostate, with the production of a rectal shelf. In 1 instance the mass was so large that mechanical obstruction to the lower bowel was evident which required colostomy. The rectal mucosa was not adherent in any of the cases but moved freely in all directions. The prostate was distinctly palpable as a separate organ and was not involved in the mass, and a distinct but shallow sulcus was readily palpated between the prostate and the mass lying superiorly. In primary carcinoma of the rectum the mucosa is fixed and the mass frequently bleeds during or after palpation. It is usual that bloody stools have been apparent for a period of time, and it is usual that such bleeding prompted examination. Such rectal bleeding does not occur with Blumer's shelf tumors or with primary carcinoma of the seminal vesicles unless invasion of the rectal mucosa has occurred. Similar findings have been made on palpation in instances of metastatic tumors, extrarectal tumors or Blumer's shelf tumors. It then becomes obvious that persons presenting such lesions or masses palpable in the rectum should receive the benefit of considerable study. Extrarectal or rectal shelf metastatic tumors have been shown to accompany distant primary tumors. It is usual that primary tumors of the rectum and extrarectal tumors do not produce urinary symptoms, but such symptoms are considered to be constant in primary carcinoma of the seminal vesicles. The rectal mucosa is generally intact and freely movable over the rectal shelf or over the carcinoma of the seminal vesicles. This is the most important feature distinguishing such tumors from rectal carcinoma. Carcinoma of the seminal vesicles and tumors of the rectal shelf do not bleed on examination, whereas in carcinoma of the rectum bleeding on examination has been shown to be constant.

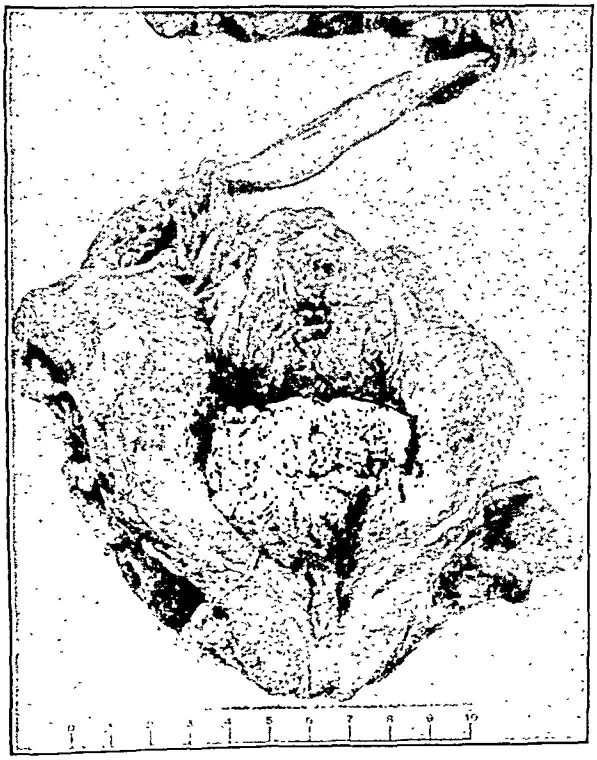


Fig. 3.—Photograph of bladder removed at autopsy. A distinct craggy mass may be seen on the floor of the bladder. A greatly dilated right ureter may also be seen.

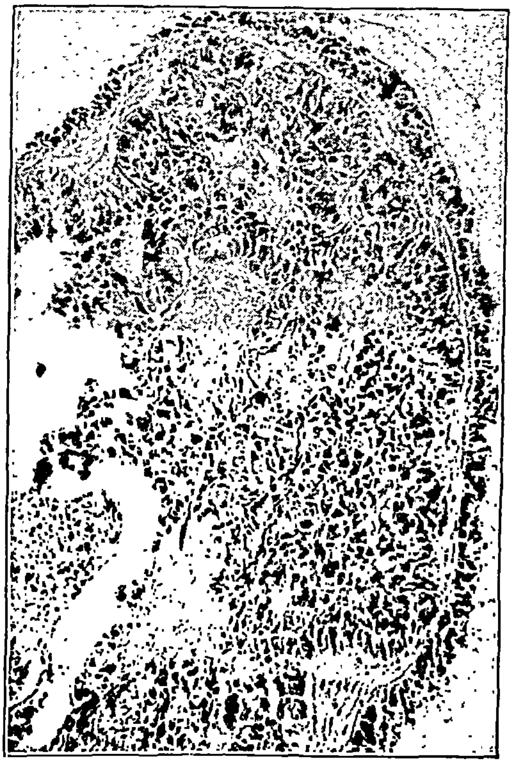


Fig. 4.—Photomicrograph showing acinar pattern. The epithelial cells are tall and sometimes goblet shaped.

TREATMENT

The treatment of primary carcinoma of the seminal vesicles is obviously unsatisfactory. Because of the nature of these organs and their anatomic position, widespread infiltration is present by the time symptoms are produced and a diagnosis can be made. Such infiltration is usually so extensive that excision is impossible. To date palliative procedures only have been considered, and with such procedures the end result is inevitable.

SUMMARY

1. The differential diagnosis of primary carcinoma of the seminal vesicles, primary carcinoma of the rectum and Blumer's shelf tumors has been reviewed. Differentiation may be difficult and is best made by biopsy.

2. Primary carcinoma of the seminal vesicles is rare, but it is believed that it is not as rare as the sparsity of the literature on the subject would suggest. To date 23 cases have been reported in the literature. To this number 1 has been added, bringing the total to 24 cases. Of this total, in only 10, including the case just reported, has the disease been proved histologically.

3. The cardinal symptoms of primary carcinoma of the seminal vesicles are frequency and difficulty of urination and hematuria associated with the rectal mass palpable above the prostate.

4. The treatment of primary carcinoma of the seminal vesicles is unsatisfactory. Excision is impossible, and only palliative measures may be considered.

1930 Chestnut Street, Philadelphia.

Special Article

CUTANEOUS CANCER

HENRY E. MICHELSON, M.D.
Minneapolis

This article is the eleventh of a series to be published by the American Medical Association in cooperation with the American Cancer Society. The series is designed to aid in the early diagnosis of cancer and thereby to gain more effective results in treatment. When complete, the series will be published in book form by the W. B. Saunders Company under the sponsorship of the American Medical Association and the American Cancer Society.

The questions that remain to be answered about cutaneous cancer today are essentially those that pertain to all forms of cancer, but the problem of cutaneous cancer offers more possibility of control, if not solution, because of the visibility and accessibility of the lesions. Early recognition and total eradication are the goal of the practitioner. Predisposing factors and the actual cause of the disease remain the problem of the research program.

Although cutaneous cancer has long been recognized and has been described in the earliest medical literature it still is the cause of irreparable damage, unsightly deformity and even death. Progress in treatment has been made largely through the application of some forms of radiation therapy and by modern surgery with plastic repair.

As a large percentage of cutaneous cancer occurs on the exposed parts of the body, there should be little difficulty in clinical diagnosis. The ease with which specimens for microscopic study can be obtained makes positive diagnosis easy. Despite this, deplorable numbers of early cutaneous cancers are missed, either because practitioners are not suspicious of the condition with which they are dealing or because they fail to persevere until all possibility of new growth in a "trivial" or "benign-appearing" lesion has been ruled out. Delay means extension of malignant growth; too often the trivial lesions become an inoperable cancer because of the mistaken policy of watchful waiting.

The classification of cutaneous cancers is not so important diagnostically as it is therapeutically. Hence the educational theme should be to emphasize the need of looking on every localized cutaneous growth, regardless of its size or duration, as a potential cancer and of not being satisfied until an accurate microscopic diagnosis has been secured. Performance of a biopsy in every such growth is imperative, even though at times the circumstances may allow a purely clinical diagnosis. I do not believe that one should emphasize the need for differentiating basal cell from squamous cell cancers of the skin as much as one should stress the great need for recognizing the characteristics of cutaneous growths that are diagnostically significant of tumor growth. The delays in positive diagnosis and the errors in judgment that have allowed comparatively simple lesions to become serious ones are usually due to the failure of the first physician consulted to accumulate the necessary evidence on which to base a positive diagnosis. The following points are worthy of consideration in every patient who presents a suspicious cutaneous lesion.

AGE OF THE PATIENT

Cutaneous cancer may occur at any age. The youth of the patient never precludes the possibility of a lesion's being cancerous. It is true that the majority of such lesions occur in persons past 50, but they may occur even in early youth.

AGE OF THE GROWTH

Age of the growth is very important because cutaneous cancers may remain stationary for long periods. It is a particularly unfortunate misconception that a lesion which has been present for a number of years, has not progressed and has caused no discomfort cannot be very dangerous. Many lesions which on microscopic examination are proved to be of a highly malignant character may have been present for many years but remained small and showed little activity for reasons that we do not understand; nevertheless they will sooner or later invade the surrounding tissue or even metastasize and become grave therapeutic problems. One should be especially careful not to be misled by a small stationary growth, but always investigate it as thoroughly as one would a more destructive one.

SIZE OF THE GROWTH

With the exception of the malignant melanoma, the smaller any cancer is the better the prognosis. Fortunate is the patient whose minute cutaneous cancer has been recognized and properly treated while it was still small. If the growth has not been completely eradicated it is almost certain to become active at some future time. One should never merely watch a tiny lesion because it is small and is not causing trouble. This is the ideal time for treatment.

MORPHOLOGIC TYPE OF LESION

It is of the utmost importance to distinguish the morphologic type of lesion to be dealt with. The surface plane of the skin is the boundary line. Lesions which grow upward, that is, rise above the skin surface, as a rule are easier to manage than those whose direction of growth is either lateral, downward or both. The appearance of the base of the lesion gives valuable information. Lesions having a constricted base that tend to become pedunculated are usually more amenable to treatment. Those with a broad sessile base, no matter how elevated the lesion itself, still belong to the more tractable group, but when growth is downward and laterally the lesion is penetrating into less accessible and more dangerous ground, with treatment more difficult and prognosis often grave. Infiltration and ulceration show extension and above all else should impress the examiner that he cannot by microscopic means accurately or completely outline the boundaries of the growth. Undoubtedly one of the chief reasons for failure in radiation treatment is the inability to visualize the projections of the growth, especially in infiltrating lesions. In this type of growth, it is well to extend the treatment beyond the visible involved area. So-called recurrences may often be the result of growth extensions that were present but had not been suspected and hence not treated. One of the crying needs for

---

From the Division of Dermatology, University of Minnesota, H. E. Michelson, M.D., Director.

successful treatment of cutaneous cancer is a means for visualizing and outlining the entire growth. It is to be hoped that research directed toward this end will be furthered. A dye, an electronic method or a refined roentgen technic which would give the therapeutist an accurate lateral and depth outline of a cutaneous cancer would be of immeasurable value in facilitating treatment and preventing subsequent *trouble.*

LOCATION OF THE LESION

Merely noting that a lesion is in a certain area is not sufficient. The experienced physician in this line of work realizes that certain anatomic locations offer a much more serious problem than others. Recalling the minute anatomy of the part is essential. The blood supply, the lymphatic drainage, the proximity to inaccessible cavities and the character of the tissue must all be taken into consideration.

As a rule lesions occurring in soft movable parts such as the center of the cheek are much easier to handle than lesions occurring in parts that are tightly stretched over the underlying tissues such as the tip of the nose, the chin and similar areas. If a growth is freely movable and can be manipulated easily it allows a varied therapeutic attack. Total excision is possible without deformity, and such a lesion gives more reassurance of successful treatment. Lesions occurring where bone or cartilage is just below the skin always cause apprehension. If such a lesion is at the entrance of the nasal, auditory or orbital cavity the problem is that much more complex; more drastic means are necessary to effect total destruction, for recurrence would probably be in an inaccessible area. Proximity to node-bearing areas must also be considered, particularly in *growths occurring in the integument whose lymphatics* drain toward the inguinal nodes. Cancers of the circumanal, perineal, genital and pubic regions should always be most carefully evaluated because of this fact. Extension of cancer into the inguinal nodes is a serious complication because of the difficulty of complete removal by dissection.

Although a large percentage of cutaneous cancers occur on the face, no area is immune and every location offers its own peculiar problem. The back of the hand, where cancers occur quite frequently, might be mentioned; here the anatomic structure offers many obstacles to efficient therapy.

RATE OF GROWTH

The more rapid the growth of a cutaneous cancer the more grave the prognosis. Although the microscopic diagnosis may not suggest a very serious type of cancer, the fact that the surrounding tissues are not offering an effective barrier to extension is most *important.* Conversely a sluggish, slowly growing lesion denotes good tissue resistance and that the area of new growth is well confined.

DEVELOPMENT

Since nothing is known of the etiology and pathogenesis or of the true biology of most cancers of the skin, it is impossible to discuss predisposing factors or why certain areas of the skin are more often the seat of cancer than others. Very early lesions are not often seen in practice, but enough of such growths have been *studied* so that we know their visible developmental changes. Almost all cutaneous cancers which do not develop in a preexisting lesion begin as a small globular elevation, which has the appearance of a minute multilocular cyst. As growth proceeds, the lesion extends both peripherally and in height, and after a certain size has been attained has the appearance of a small broad-based dome, rather translucent, overlaced with small blood vessels. If the growth extends laterally *and not downward the lesion may not change in appear*ance, but usually extension is in all directions, and in this case the nutrition of the central portion is soon interfered with and the center sinks, necroses or ulcerates. If there is considerable secretion a crust forms and the lesion then becomes a crusted ulcer. Subsequent progress depends on the anatomic character of the part involved, on the rapidity of growth and on the amount of sclerosis that the tissues can produce. At first the lesion is round, but as growth is not uniform it soon becomes irregular in outline. This description applies to most cancers of the skin irrespective of their microscopic appearance; hence the clinician must not expect only a certain type of morphologic growth to be cancerous, but must realize that a cancerous lesion may vary from a small translucent globule to a large crusted ulcer. From the morphologic appearance an experienced observer may with a fair degree of certainty predict the histologic features, but accurate classification can only be made microscopically. Classification of such tumors must be based on their histology, for a clinical classification is at present impossible.

PRECANCEROUS LESIONS

Precancerous lesions constitute a group of cutaneous lesions difficult to define and more difficult to recognize as such. We call precancerous those pathologic changes in tissue which without being cancerous show the tendency sooner or later to develop into actual cancer. Unfortunately many excellent studies of this group of cutaneous lesions disappointingly did not throw much light on the beginning of cell cancerization. Neither did study of precancerous lesions prove that one type of lesion always metamorphosed into a certain type of cancer. The importance of recognizing precancerous lesions in the skin is prophylactic because it may be said that development of severe cancer and death traced to cancer of the skin would be tremendously decreased if all precancerous lesions were properly diagnosed and *destroyed. It should be noted, however that there are* many so-called precancerous lesions which change so *slowly that a cancer does not develop from them within* the patient's lifetime; nevertheless one is unable to foretell and therefore from a practical point of view all fixed keratoses may be considered precancerous, although a statistical study reveals that so-called senile keratosis is much more important than seborrhoeic keratosis. However, complete removal of both types is the only safe procedure and should be unhesitatingly advocated; although differentiation of these two types of keratoses is histologic, microscopic study of all keratoses before treatment need not be done; however, if keratosis recurs at the same site after removal by a reliable method, microscopic study should be done before retreatment.

Areas harboring chronic inflammation, such as plaques of lupus vulgaris, discoid lupus erythematosus, chronic roentgen dermatitis and even stasis ulcers, may be broadly considered precancerous.

Attention is called to the fact that a change in the type of inflammation or in the morphology of the diseases just mentioned should immediately arouse suspicion and call for microscopic study. For the general practitioner I do not believe that it is necessary to distinguish such rare dermatoses, as for example Bowen's disease, which may be classified with the keratoses and with Paget's disease. Here again the emphasis should be on the danger which is potential in any fixed, persistent and irresponsive cutaneous lesion. In such a lesion regardless of its more minute characteristics, cancer must be placed high on the list of possibilities and can be excluded only by the lesion's being proved free from cancerous changes. This can only be ascertained by microscopic study.

BASIC TYPES

Basic types of cancers of the skin are usually divided roughly into basal cell and squamous cell types, and these two basic types are deemed sufficient for a brief practical discussion. It is not proposed in this communication to review the various rare cancers which arise from glandular tissue and other infrequent types and combined forms. Therapy as well as prognosis of cutaneous cancer is based in general on the clinical appraisal plus the results of biopsy. A quick decision can usually be made from such findings; extended study demands serial sections and is not practical in everyday practice.

The basal cell cancer is the most frequent and the least malignant of the cancers of the skin. The lesions are strictly confined and do not metastasize. They have certain clinical characteristics, but these are not as reliable diagnostically as their microscopic features, which are rather typical and uniform. I have noted a tendency of practitioners to make a clinical diagnosis of basal cell cancer with the implication that the lesion is benign, even trivial. I am much opposed to diagnosing the type of cancer by macroscopic examination alone and believe that a great many failures of treatment are due to this practice. It should be emphasized that the type of cancer cannot be accurately diagnosed without microscopic aid. Pedagogically it would be far better if no effort were made to differentiate between types and diagnosis were confined to the over-all term "cancer of the skin." The squamous cell cancer may have the same morphologic appearance as a basal cell cancer. It cannot be diagnosed as such any more than the basal cell type can by inspection, but it is even more important to demand diagnosis by microscope, for the squamous cell cancer is much more resistant to radiation treatment and furthermore may metastasize to the adjacent nodes or glands.

Most cancers of the skin occur on exposed parts, a large percentage being on the face, neck, ears and forehead. They occur on the hands and a lesser number on the trunk and in various other locations. It is more important to evaluate the precise anatomic location than the region.

On certain areas of the integument or its adjacent mucous membrane if involved a uniform type of cancer seems to develop. This is particularly true of the lip, dorsum of the hand and the external genitals. In these areas basal cell cancer occurs very infrequently. On the other hand, there is no area of the body about which it may be stated that only basal cell cancers occur.

DIAGNOSIS

Diagnosis and therapy are the most important headings in any discussion on cancer of the skin. The general practitioner should be as well able as a dermatologist to diagnose cutaneous cancer. The specialist excels only because he is more suspicious of the various types of lesions that may be cancerous and he realizes the ease of doing a biopsy to confirm or disprove his suspicions. He does not depend on prolonged observation in order to decide what is taking place, but appreciates the need of an immediate decision. This is the crux of the whole problem of the diagnosis of cancer of the skin. I believe that teaching should more emphatically stress the urgency of early diagnosis of such lesions and that the practitioner should always be suspicious of cutaneous lesions, especially when they occur on the face, and, regardless of the age of the patient, the duration of the lesion, the type of lesion or the history, should secure a microscopic diagnosis. It seems to me futile to make elaborate and tedious descriptions of lesions or to stress topographic possibilities. I would also condemn with all the vehemence at my command the shameful practice of "watching" a lesion. The only lesion to be watched is the one proved to be noncancerous or, better still, the area from which a lesion was eradicated. I would also condemn the trial use of mild remedies such as cauterization with silver nitrate or using caustic acids. Such procedures should be outlawed.

What then is the correct diagnostic approach to suspected cutaneous cancer? The physician should be concerned with the growth itself and the welfare of the person harboring the growth; the examination of the patient is the same as employed in all diseases. A blood sample should always be taken for a Wassermann test. I believe that a serologic test should be made for every dermatologic patient, and it should be insisted on in the presence of an ulcer or tumor.

The inspection and palpation of the lesion reveals its size, shape, consistency and attachments. Close scrutiny discloses the condition of the immediate surrounding tissue. An inflammatory halo, elevation, scaling or induration usually means that the border of the lesion is beyond the visible outline. The adjacent lymphatic nodes should always be palpated. A crust should be gently removed and the character of the base noted. White scar tissue in the base is a welcome finding, while deep ulceration indicates invasion. But even the most careful examination does not reveal the true character of the growth. An excision must be made from the most active border; large enough and deep enough to give the pathologist a representative section. For my own part I see no valid objection to performing a biopsy. I am certain the prognosis is not altered one iota and the advantages far outweigh any possible objection. Neither do I believe that the small delay incurred is important.

To summarize, the clinical diagnosis of cutaneous cancer is a matter of sensible suspicion. The positive diagnosis rests on the excision of tissue for microscopic study.

out the tissue. The exact nature of these cysts was not determined by this procedure. Paraffin sections revealed a chronic granulomatous lesion containing areas of caseous necrosis scattered in a collagenous matrix. In many areas there were pseudotubercle formations with foreign body giant cells and epithelioid proliferation (fig. 2). Scattered in the caseated areas were refractile bodies which under higher magnification appeared as ova with definite refractile shells (fig. 3). Many of these were distorted by shrinkage, but occasionally one saw a suggestion of a subterminal spur. These ova appeared to be of Schistosoma. Surrounding the pseudotubercles were zones of lymphocytic and eosinophilic infiltration and early connective tissue proliferation (fig. 4). The giant cells that were seen were of the Langhans type. Immediately adjacent to these giant cells, one occasionally saw several clumps of these ova in nests of two to five cysts.

The section of brain showed pronounced glial reaction, typical perivascular cuffing and degeneration of the normal brain tissue (fig. 5).

The pathologic lesions were those of chronic granuloma, secondary to schistosomiasis. The brain adjacent to these lesions exhibited reactive cerebritis with pronounced glial reaction.

Postoperative Course.—Immediately after the operation, the patient demonstrated a monoplegia involving the left upper extremity which improved steadily until it was barely detectable at the last examination, on April 25, 1947. The papilledema subsided promptly. The patient showed a mental disturbance characterized by extreme euphoria and garrulity. This cleared gradually in about four weeks.

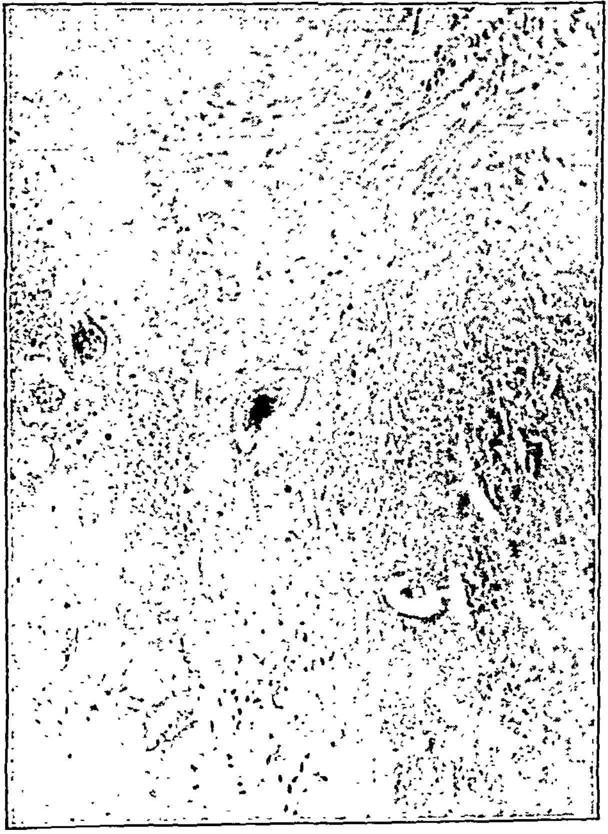


Fig. 3.—Schistosoma japonicum ova, brain. (Negative of United States Army Institute of Pathology.)

Repeated stool examinations, including sigmoidoscopy with direct smears from the rectal crypts, and repeated urinalyses failed to reveal any evidence of Schistosoma ova.

Specific postoperative therapy consisted of intravenous administration of 0.5 per cent antimony potassium tartrate every other day, beginning with 8 cc. and raising the dosage by 4 cc. each time until 28 cc. was being given. This was continued until a total of fifteen doses (0.648 Gm. of antimony) had been administered. There were no untoward reactions.

Figure 6 represents a postoperative encephalogram made on Jan. 31, 1947. The ventricular system had returned to its normal position, with some dilatation of the right lateral ventricle. The patient was discharged a week after these roentgenograms were taken.

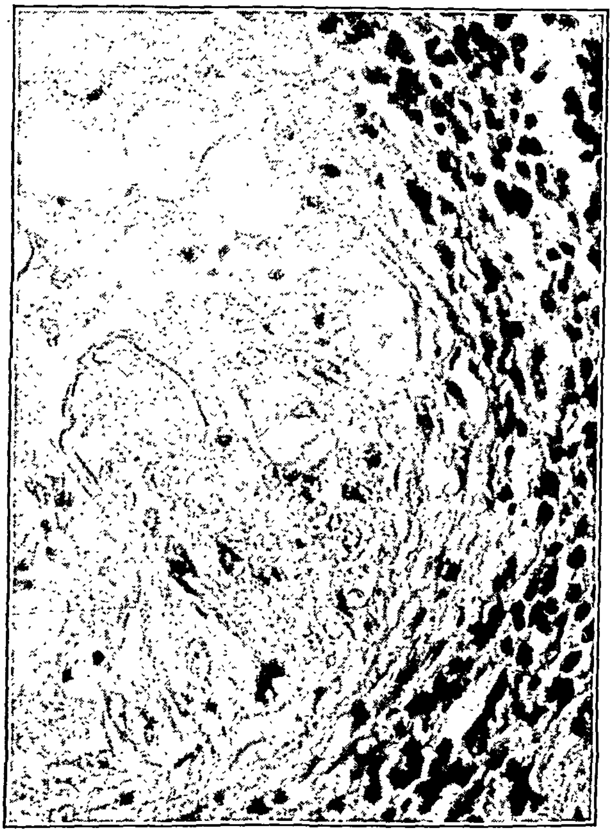


Fig. 4.—High power view of edge of pseudotubercle about the shell of an ovum, showing epithelioid cells and peripheral ring of eosinophils and lymphocytes. (Negative of United States Army Institute of Pathology.)

Neurologic survey at discharge revealed a moderate paresis of the left arm with increased deep reflexes and a positive Hoffmann response. There was no headache, and the patient appeared mentally normal and emotionally stable.

On April 25, 1947, the patient returned for follow-up examination. The weakness of the left arm was by then minimal, but the hyperreflexia and Hoffmann response persisted. Otherwise the examination remained unchanged. He had had one abortive sensory seizure the preceding day, similar to his preoperative attacks. This was the first such episode since Nov. 11, 1946. The patient otherwise felt well, although he had not returned to full time employment. He was placed on diphenylhydantoin sodium, 0.1 Gm. three times daily, at this time.

COMMENT

There are three varieties of the Schistosoma: mansoni, haematobium, and japonicum. The japonicum variety is endemic in Japan, China, Formosa, the Philippines and the Celebes, and is in all probability the infectious agent in this case. Positive microscopic diagnosis was not possible, however. Reports of neurologic complications of the haematobium variety are rare in the literature, and those of S. mansoni even more so. The latter is said to favor the spinal cord.[4]

The disease has been described as consisting of three phases, merging into one another: the first from the penetration of the cercaria to the settling of the mature worms in the venous system (usually mesenteric); the second, the period of egg laying and dissemination, and the third, the development of cirrhosis of the liver, splenomegaly, intestinal and vesical polyposis secondary to reparative processes and chronic irritation. The nervous system apparently may be involved early, when the acute systemic manifestations are in evidence. Egan[5] in 1936 reported an outbreak in which 2 persons were afflicted with severe delirium and diffuse neurologic signs. Speigel[1c] mentioned this phenomenon briefly. Spiridon[6] in 1936 and Tillman[7] in 1945 reported similar complications associated with acute outbreaks of the infection. The neurologic involvement is, in these cases, obviously a complication of the acute systemic disease and responds with the systemic disease to specific treatment. Diagnosis is not difficult, as the ova are readily demonstrable in the stools.

---

[4] (*a*) Müller, H. R., and Stender, A.: Bilharziose des Rückenmarkes, unter dem Bilde einer Myelitis dorsolumbalis transversa completa, Arch. f. Schiffs- u. Tropen-Hyg. 34: 527-538, 1930. (*b*) Schistosomiasis Japonica, Bull. U. S. Army M. Dept. 4: 273-276, 1945.

It is the late complications with which we are most concerned, both because these are the cases which will likely be seen in this country and because they may be extremely difficult to diagnose prior to operation or autopsy. Of the 11 cases in which operation has been performed to our knowledge[8] in only 1 (Swanson's) was the true diagnosis seriously entertained before surgery. There was a clearcut history of infection in one and a doubtful history in another. In 1 of those without a suggestive history of infection, the ova were found in the stools postoperatively. In all others the stools were negative.

As to the gross pathologic lesion, almost all of the heretofore reported cases in which operations were done have shown unilateral massive granulomas containing ova, occipitoparietal or temporoparietal in location. This, with certain histologic observations, has given rise to the opinion, no doubt well founded, that the maternal organism was in one of the great cerebral sinuses or veins, and her egg deposits were therefore well localized. Hence the mass lesion.

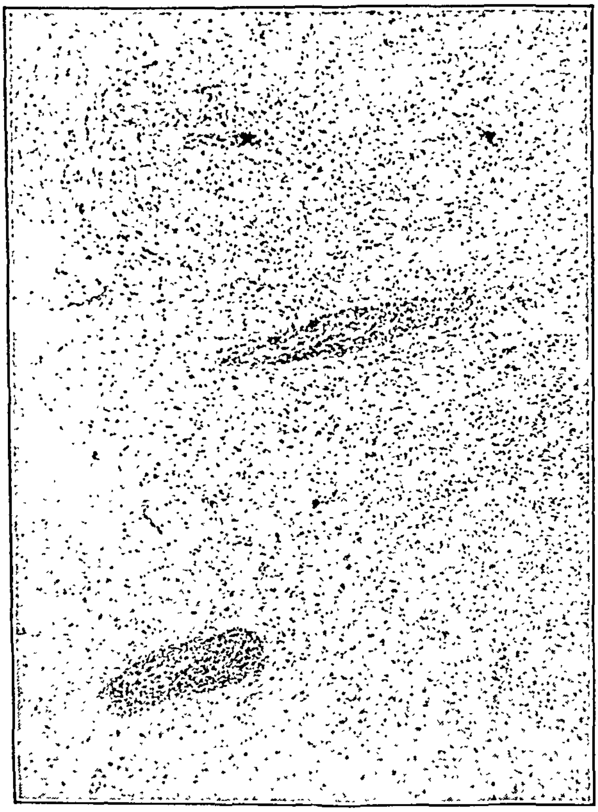


Fig. 5.—Reaction in adjacent brain tissue, showing prominent vascular cuffing; schistosomiasis, brain. (Negative of United States Army Institute of Pathology.)

On the other hand, favoring a more diffuse embolic process are the autopsy observations of Vitug, Cruz and Bautista[9] of bilateral diffuse lesions and the autopsy observations of Tsunoda and Shimamura[10] of unilateral diffuse left hemispheral lesions. Ours is one of the first cases, to our knowledge, in which operation was done which fell into this group of diffuse lesions. It is probable that both mechanisms of deposition are operative.

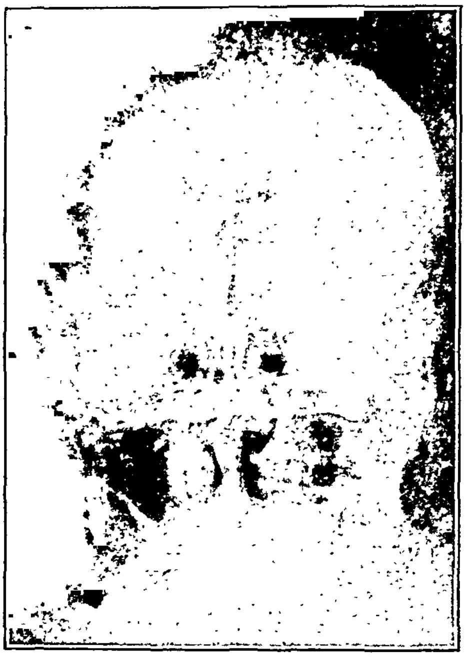


Fig. 6.—Anteroposterior view of the skull taken postoperatively after the introduction of air into the lumbar subarachnoid space.

With regard to the clinical manifestations, they are those of an intensely irritative focal or diffuse lesion producing headache, epileptiform seizures, focal neurologic signs and, in about one half the cases reported, papilledema. The difficulties in differential diagnosis between this condition and brain tumor can easily be appreciated. Blood eosinophilia and ova in the stools are uncommon at this stage of the disease and, at best, offer only presumptive evidence.

In view of the rarity of the lesion and the frequent development of large intracerebral masses, it would seem that most patients must still be subjected to operation for diagnostic as well as therapeutic reasons. In our case, however, it seems probable that surgical treatment would not have been necessary had positive diagnosis been possible by clinical and laboratory methods. All patients should be treated specifically with either stibophen or antimony potassium tartrate. The latter is felt by most authorities to be the most effective drug, although it is considerably more toxic.[11] Under this therapy the prognosis for life would appear to be excellent, although neurologic disabilities, particularly convulsive seizures, are frequent residuals.

SUMMARY AND CONCLUSIONS

A case of diffuse granulomas and cerebritis due to schistosomiasis is reported. Surgical treatment with subsequent administration of one of the antimony compounds would seem to give satisfactory results in these cases.

---

[5] Egan, C. H.: An Outbreak of Schistosomiasis Japonica, J. Roy. Nav. M. Serv. **22:** 6-18 (Jan.) 1936.

[6] Spiridon, J. T.: Schistosomiasis Japonicum: An Account of an Outbreak, J. Trop. Med. **39:** 161-164 (July 15) 1936; cited by Watson, Murphy and Little.[1d]

[7] Tillman, A. J. B.: Cerebral Manifestations of Schistosomiasis, abstracted, Bull. U. S. Army M. Dept. **4:** 492 (Nov.) 1945; cited by Watson, Murphy and Little.[1d]

[8] Shimidzu.[3] Greenfield and Pritchard.[2] Footnote 1.

[9] Vitug, W. Cruz, J. R., and Bautista, L. D.: Schistosomiasis Involving the Brain: Two Case Reports, J. Philippine Islands M. A. **21:** 291-298 (June) 1941.

[10] Tsunoda, T., and Shimamura, S.: Beitrage zur pathologischen anatomie der sogenannten "Katayama-Krankheit," zur Aetiologie der Hirngefässembolie und der Jackson'schen Epilepsie, Wien. med. Wchnschr. **56:** 1681-1685 (Aug.) 1906.

[11] Treatment of Schistosomiasis, United States War Department, Technical Bulletin (TB Med 167), Washington, D. C., Government Printing Office, June 1945. Footnote *4 b*.

ENDOMETRIOSIS IN A YOUNG GIRL

ALFRED HULL CLARK, M.D.
Buffalo

Dr. John Fallon of Worcester, Mass., in the summer of 1946, reported 9 cases of endometriosis in girls under 20. Up to the time of his report endometriosis was not looked for in persons of teen age. Fallon drew attention to endometriosis as the cause of dysmenorrhea even in young girls.

The case herein reported is, as far as I know, that of the youngest girl yet reported in whom symptoms referable to endometriosis appeared.

B. S. was born Dec. 2, 1932. In August of her eleventh year, 1944, she had a slight, though definite, pain in the lower left quadrant of the abdomen, which lasted for three or four days. The pain recurred every month until after her twelfth birthday, when she first menstruated. At this time, April 1945, her first period was accompanied with the same pain noticed each of the previous months, but slightly greater. Thereafter the pain with each period became severer. It started every month the day before the period and lasted four or five days. There was often vomiting, usually after oral medication. There was a gradual change in personality. The girl became moody and somewhat unsocial. Treatment with sedatives, estrogens and other medicaments were useless. It was not until treatment with opiates was resorted to that the pain was controlled. Finally, one of several physicians who had seen the patient sent her in for resection of the presacral plexus. Examination, because of virginity and a fat abdomen, was not satisfactory, and a diagnosis of endometriosis was not made until the abdomen was opened, although dysmenorrhea, increasing each month, should have served as a diagnostic point.

At operation the omentum was seen to be wrapped around a mass attached to the left cornu of a bicornate uterus. When this mass, with the attached omentum, was removed, it measured 6.5 by 3 by 3 cm. There was a smaller separate mass, 3 by 1.5 by 1 cm., on the anterior surface of the left broad ligament. Dr. Anthony Postoloff, pathologist at the Millard Fillmore Hospital, from the examination of both masses, gave the diagnosis of endometriosis. Neither ovary was involved. The larger mass was made up of several small cysts, the largest cyst was 1 cm. in diameter and all the cysts were filled with a chocolate-colored viscous substance.

There was no pain during any of the three menstrual periods since the operation, and the girl is again normal.

The periodic pain occurring for eight months before the menarche is suggestive of cyclic changes in the endometrium before actual bleeding occurs. It may be that swelling of the endometrial tissue in the closed cysts caused the pain.

Council on Foods and Nutrition

The following products have been accepted as conforming to the Rules of the Council.

JAMES R. WILSON, M.D., *Secretary.*

Libby, McNeil and Libby, Chicago, Ill.

LIBBY'S STRAINED AND HOMOGENIZED APRICOT-FARINA consists of apricots, water, dextrose, *farina* and salt.

Analysis (submitted by manufacturer).—Total solids 20.59%, moisture 79.41%, crude protein 0.87%, fat (ether extract) 0.06%, ash 0.53%, crude fiber 0.35%, carbohydrates other than crude fiber (by difference) 18.78%.

Calories.—0.79 per gram; 22.44 per ounce.

Vitamins and Minerals.—Content per hundred grams: vitamin A, 2,634 U. S. P. units; thiamine, 0.013 mg.; ascorbic acid, 2.10 mg.; riboflavin, 0.022 mg.; niacin, 0.30 mg.; salt (NaCl), 350.00 mg.; calcium, 12.50 mg.; phosphorus, 18.10 mg., and iron, 1.03 mg.

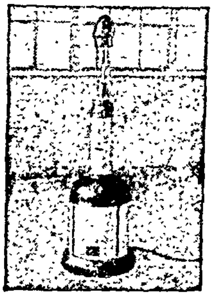
Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following reports. HOWARD A. CARTER, *Secretary.*

HANOVIA "LIGHTHOUSE" PORTABLE LARGE GROUP IRRADIATION ULTRAVIOLET LAMPS ACCEPTABLE

Manufacturer: Hanovia Chemical & Mfg. Company, Chestnut Street and N.J.R.R. Avenue, Newark 5, N. J.

These lamps, Models 2143 and 2145, are sources of ultraviolet radiation. They are the same in most particulars except the power consumption and intensity of radiation output; Model 2143 has a 550 watt burner and Model 2145 has a 700 watt burner. The generating lamp is of the high-pressure low-voltage mercury arc type and is enclosed in a quartz tube. The assembled apparatus is designed to be set in the center of a room to permit the simultaneous irradiation of a group of 12 or more patients in the standing position, the lamp being about 1.2 meters (4 feet) above the level of the floor.



Hanovia "Lighthouse" Models 2143 and 2145.

One lamp (Model 2143) was investigated in a clinic acceptable to the Council on Physical Medicine. This lamp produced a minimal erythema dose on untanned skin in five minutes at a distance of 2.1 meters (7 feet) as claimed by the manufacturer. The appearance and durability of the apparatus were good.

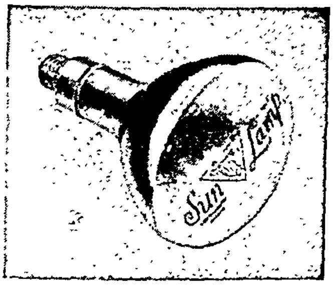
The Council on Physical Medicine voted to include the Hanovia "Lighthouse" Portable Large Group Irradiation Ultraviolet Lamps, Models 2143 and 2145, in its list of accepted devices.

ARTRON SUN LAMP, TYPE A, ACCEPTABLE

Manufacturer: Hytron Radio & Electronics Corp., 76 Lafayette Street, Salem, Mass.

Distributor: Affiliated Retailers, Inc., Empire State Building, New York 1.

The Artron Sun Lamp, Type A, is of the bulb type, containing a filament within a small quartz capsule that houses the mercury arc. The power required for operation is 275 watts on a 110 to 125 volt A. C. circuit. Except for the fact that it bears the etched name "Artron," this lamp is identical with the Hytron Sun Lamp, Type A, manufactured by the Hytron Radio & Electronics Corp. It is similar in construction to the General Electric and Westinghouse lamps of Type RS. The Artron Sun Lamp is made especially for the Affiliated Retailers, Inc., Empire State Building, New York 1.



Artron sun lamp, Type A

An investigator for the Council verified the erythematogenic effectiveness of the lamp. He made three exposures, side by side, of the untanned inner upper arm, at a distance of 24 inches (61 cm.) from the front edge of the lamp, for periods of five, ten and fifteen minutes, respectively. After three hours, the fifteen and ten minute exposures were very red and the five minute exposure showed a faint reddening. One day later only the ten and fifteen minute exposures were still red. They were still red three days after the irradiation, but they were not tender as they would be if there had been blistering. He concluded that the manufacturer's recommendation of exposure not longer than five minutes was correct.

The Council on Physical Medicine voted to include the Artron Sun Lamp, Type A, in its list of accepted devices.

HANOVIA ONE BURNER GROUP IRRADIATION ALPINE CEILING LAMP ACCEPTABLE

Manufacturer: Hanovia Chemical & Mfg. Company, Chestnut Street and N.J.R.R. Avenue, Newark 5, N. J.

This lamp, Model 2137, is an ultraviolet radiation generator and is designed to be fastened to the ceiling. Regulation of the intensity of the ultraviolet radiation is controlled from a floor-type cabinet. It has five steps of intensity control. The burner is a high-pressure low-voltage mercury arc lamp in a quartz tube and requires 700 watts of electrical power. The transparent fused quartz tube is provided at each end with electrodes of the incandescent tungsten filament type.

Hanovia Model 2137.

The central fixture consists of a hood which may be suspended from the ceiling in the middle of the room at a distance of about 2.1 meters (7 feet) above the cots. The firm claims that at this distance the maximum intensity of radiation, 3,130 angstroms and shorter, on the cots with the control set for minimum intensity is 200 microwatts per square centimeter. This intensity will produce an erythema on the untanned skin after five minutes' exposure.

The lamp was investigated in a clinic acceptable to the Council and the claims of the manufacturer were confirmed.

The Council on Physical Medicine voted to include the Hanovia One Burner Group Irradiation Alpine Ceiling Lamp, Model 2137, in its list of accepted devices.

CALIFORNIA DRI-AIRE LAMP NOT ACCEPTABLE

Manufacturer: California Therapy Equipment, Inc., 5982 West Pico Boulevard, Los Angeles 35.

The California Dri-Aire Lamp is essentially an infrared lamp. It stands on the floor, is adjustable in height, can be set at various angles and has a shepherd's crook neck so that its rays can be directed on a bed or on a seated patient.

The firm states that the lamp operates on either direct or alternating current, requires 110 volts and draws 500 watts of electrical energy. According to the manufacturer, "Its intensity can be increased or decreased by moving the lamp closer or away from the person using it. The coating on the element cuts down rays such as ultraviolet and intensifies the infrared," and the lamp has approval of Underwriters' Laboratories.

The illustrations in the advertisements show an object that looks like a switch attached to the power supply wire. However, the lamp sent to the Council office for examination had no switch and had to be turned off by pulling out the plug.

The firm submitted copies of a full page advertisement. Much emphasis is laid on the ability of this lamp to "provide a zone of warm, dry air similar to the soothing, quality air of the desert." There is, of course, nothing in the lamp to exercise a special dehumidifying effect; by heating the air in its vicinity it reduces the relative but not the absolute humidity. It cannot, obviously, make dry desert air out of the humid air of a hot day in Chicago, for example. Thus the firm's claim that the apparatus "brings soothing, healing, dry, warm desert air wherever and whenever you want it" is misleading. The classification which includes neuritis and sacroiliac pain among "circulatory ailments" is inaccurate.

On the basis of its construction, which shows no advantages over similar products of other manufacturers, and of the advertising, which contains inadmissible claims, the Council on Physical Medicine voted not to include the California Dri-Aire Lamp in its list of accepted devices.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The Council has authorized publication of the following statement. Austin Smith, M.D., *Secretary.*

ANNUAL MEETING OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry convened at 9:30 a. m. Nov. 14, 1947, for a two day meeting at the headquarters of the American Medical Association. In attendance were the following members: David P. Barr, Paul R. Cannon, S. W. Clausen, Morris Fishbein, E. M. K. Geiling, Chester Scott Keefer, C. Guy Lane, James P. Leake, Robert F. Loeb, Perrin H. Long, G. W. McCoy, Stuart Mudd, E. M. Nelson, Austin Smith, Torald Sollmann, Isaac Starr and W. Barry Wood Jr. Also in attendance, in addition to members of the headquarters staff and members of the Therapeutic Trials Committee, were Dr. Robert Stormont, medical director of the Food and Drug Administration; Dr. Milton Veldee, chief, Biologics Division of the National Institute of Health; Dr. Donald A. Wallace, secretary of the Council on Dental Therapeutics; and Dr. E. Fullerton Cook, chairman of the Pharmacopeial Revision Committee.

The first order of business was the election of officers. Torald Sollmann was reelected chairman and James P. Leake vice chairman. The Council then proceeded to the consideration of topics on the agenda.

The Council considered problems associated with the use of multiple dose containers, emphasizing particularly the transmission of the agent responsible for homologous serum jaundice and the inadequacy of preservatives to prevent the transmission of some infectious agents, particularly when the menstruum may be a good medium for bacterial, fungous or virus growth. After extended discussion a committee was appointed to bring definite recommendations to the Council.

The present status of thyroxin was reviewed, and it was concluded that the usefulness of this drug and the dangers associated with its use do not justify its continuance in New and Nonofficial Remedies. It was therefore voted to omit it from the next edition (1949). Manufacturers with accepted brands will be informed of this action.

The status of "scillaren" was discussed, and while it was agreed that this squill preparation has only limited use and value, such as would be the case in the presence of apparent sensitivity to digitalis, it was decided that this agent could be continued in New and Nonofficial Remedies unless there was evidence of its misuse by the members of the medical profession. It is believed that the scope of New and Nonofficial Remedies include drugs which, although their actual use is limited, are nevertheless effective and possess usefulness.

Because untoward reactions such as fever, rash, acute leukemia, leukopenia and other manifestations of toxicity developed in approximately 18 per cent of patients who receive sulfathiazole (which compares with about 16 per cent for sulfapyridine, 12 per cent for sulfanilamide, 6 per cent for sulfadiazine and 7 per cent for sulfamerazine), the Council questioned the need for continuing the acceptance of this drug inasmuch as other sulfonamide compounds, penicillin and streptomycin are now available. Accordingly, a motion was adopted to omit sulfathiazole from the 1949 edition of New and Nonofficial Remedies and to notify all manufacturers and distributors of accepted brands. This conforms with the Council's policy of withdrawing acceptance of a toxic drug when a less toxic but equally effective agent becomes similarly available. Because of its side effects sulfapyridine has been omitted from New and Nonofficial Remedies.

The use of a sulfonamide ointment for prophylactic (venereal) purposes was discussed and a committee appointed to report back to the Council. This consideration followed the Council's recent decision to discontinue recognition of the local use of sulfonamide drugs (The Journal, Sept. 20, 1947, p. 157).

A related topic of discussion was the use of mixtures of sulfonamide compounds, which have received some attention because of claims that such mixtures permit effective treatment with lower doses and fewer side reactions. Formal action on this problem was not taken. The Council reviewed the criteria necessary to justify acceptance of mixtures of drugs and voted to appoint a committee to study this problem and present a report on the application of the rules to mixtures.

The sale of "over the counter" items for reducing has produced a problem of great health and economic significance. Much money is being spent for useless preparations, and many persons are attempting to treat themselves with useless or, as the case may be, dangerous remedies. The Council stands for rational, honest therapeutics and not for deceit or quackery. Therefore it was voted to prepare for publication several articles on this subject.

Remedies for motion sickness appear to be receiving increasing attention in general advertising, which creates a health problem. Because some of the ingredients sometimes used are potentially dangerous when given in effective doses and fraudulent if provided in smaller doses, the Council authorized preparation of a review of this subject for publication.

The Council is continually reviewing the rules by which it functions and considers, especially those regulations that seem to be less well understood. The recognition of names is one of these, and a series of proposals was made at this meeting to permit the best possible understanding of the objectives of the Council and of ways of meeting the objectives. Any changes in the editing of the rules that may be adopted by the Council will be incorporated when the rules are republished, as they are each year in New and Nonofficial Remedies and in a booklet available on request from the office of the secretary of the Council.

The Council further reviewed the status of influenza vaccines and the effect of new strains of influenza virus. No action was taken other than to insure that in New and Nonofficial Remedies the statements for influenza vaccines be specific in claiming that such preparations are effective only against the strains included in the particular vaccine described. It was the consensus that much remains to be learned concerning the usefulness of such products.

The Council considered how best to keep abreast with changes in immunization dosages and technics and during the discussion adopted a motion recommending that the National Institute of Health be asked to publish periodically its minimal standards for biologics.

The status of mixed vaccines that contain materials for immunization against typhoid and paratyphoid A and B was reviewed, and the Council voted to delete this mixture from New and Nonofficial Remedies and to accept from Jan. 1, 1948 only the typhoid vaccine for civilian typhoid prophylaxis.

The Council recently voted to recognize "methadon" as a generic name for 6-dimethylamino-4-,4-diphenyl-3-heptanone (The Journal, Aug. 23, 1947, p. 1483). A question was raised concerning the possibility of this being confused with metopon, an opium derivative. After due deliberation it was the consensus that the possibility of confusion is not great and that no further action need be taken at this time.

Because of the inherent dangers of thiouracil and the efficacy of propylthiouracil, which provides all the benefits that could be expected from thiouracil with a mere fraction of the unfavorable actions, the Council voted to omit thiouracil from New and Nonofficial Remedies.

The Council was informed that the Board of Trustees of the American Medical Association found it impossible to continue providing funds for the distribution of complimentary copies of New and Nonofficial Remedies to students in approved medical schools. Printing costs have forced discontinuance of a practice that has been in effect for over twenty years.

A report of the activities of the Therapeutic Trials Committee revealed this standing committee to be established already with the knowledge that it is fulfiling a function that cannot be fulfilled by any other existing agency, particularly in two large projects now before the committee, namely, the effect of steroids on cancer and the treatment of anterior poliomyelitis. The work of the committee was commended highly and the report was approved.

The report of the Therapeutic Research Committee, which issues grants for research, was placed before the Council and was approved as made.

The status of protein hydrolysates and concentrates, amino acid mixtures and amino acids was reviewed.

Comment was requested on the advisability of continuing to publish the tests and standards section of New and Nonofficial Remedies in The Journal, and it was decided that this practice should be continued, especially in view of the wide circulation of The Journal to foreign countries.

Consideration was given to manufacturers whose activities have been made the subject of court investigation and record and who have submitted articles to the Council for inclusion in New and Nonofficial Remedies.

The rules of the Council provide that articles which have been official for twenty or more years may be deleted from New and Nonofficial Remedies. To take care of the problem associated with protected names that have been recognized by the Council, it was agreed that such names might be transferred to an addendum to New and Nonofficial Remedies, in which could be given sufficient data on such preparations.

Consideration was given to the possibility of closer cooperation with the Pharmacopeial Revision Committee through the issuance of a joint publication on drugs. A committee was appointed and instructed to study the proposal and report back to the Council.

The Council also gave consideration to the advisability of continuing its insistence on the name of the salt being included in the drug titles that are accepted for inclusion in New and Nonofficial Remedies. One manufacturer raised the possibility of legal difficulties because some pharmacopeial names do not include the salt. However, after considering all the factors involved the Council reaffirmed its previous decision that the name of the salt, when such exists, must appear in the title when the drugs are accepted for inclusion in New and Nonofficial Remedies.

The Council also gave consideration to the mention of experimental uses of drugs accepted for inclusion in New and Nonofficial Remedies in promotional material and, decided that appropriate explanatory statements could be carried in the rules to cover this point. At the same time the members reviewed the question of inclusion of accepted and nonaccepted articles in the same advertising material, and again it was decided that appropriate explanatory comments could be framed to handle this problem.

REPORT OF THE COUNCIL

The Council has authorized publication of the following statement which will appear also in the 1948 edition of New and Nonofficial Remedies. It is published in The Journal *because of the intensity of current interest in amino acids and modified protein preparations.*

Austin Smith, M.D., *Secretary.*

PROTEIN AND AMINO ACID PREPARATIONS

Protein and amino acid preparations may be conveniently divided into two general classes: (1) mixtures of those amino acids considered essential to human nutrition that are used to combat protein deficiency imposed by severe illness or starvation; (2) individual amino acids that may be used for specific therapeutic purposes.

Preparations in the first class include (*a*) hydrolysates of protein or sources of protein prepared by various methods of artificial digestion designed to provide adequate amounts of the essential amino acids, and (*b*) mixtures of synthetic amino acids. Preparations in the second class include any of the individual amino acids that may be specifically indicated for the treatment of disease. Aminoacetic acid (glycine), formerly used in the treatment of myasthenia gravis, and histidine, which has been tried for the treatment of peptic ulcer, are examples of this type, though neither are currently recognized to be of specific value in these conditions. Neither methionine nor lysine, although promising for the treatment of disease of the liver, has been definitely established to be of specific therapeutic value for that condition.

While mixtures of the essential amino acids are presently recognized to exert a favorable antacid and nutritive effect in peptic ulcer, their primary purpose is to supply dietary nitrogen in readily assimilated form when there is serious interference with the intake, digestion or absorption of dietary protein. There is no evidence that the addition of amino acids to foods will accomplish anything that cannot be accomplished by proper use of proteins as they occur naturally in the diet when there is no such interference.

The amino acids that are now regarded as indispensible for protein synthesis in adult man comprise those which the body is itself unable to synthesize and are generally listed as follows: phenylalanine, tryptophane, methionine, lysine, leucine, isoleucine, threonine, valine, histidine and arginine. These ten amino acids or their precursors are usually provided in mixtures intended for protein replacement in human beings but there is some doubt at present about the indispensability of histidine and arginine in adult man.

As yet there is insufficient information on which to set up exact dosage estimates for the amino acids that are prescribed to meet protein needs of the body. The daily requirements for the individual amino acids are under investigation, and there are indications that these range from 0.3 to 5 Gm. each per day. Until more is known of human requirements, amino acid preparations must be given in sufficient quantities to provide every essential constituent in substantial amounts. This may be based on the commonly recommended optimum daily intake of total dietary protein: 1 Gm. per kilogram of body weight, or about 70 Gm. daily for the average adult man. This figure is based on the fact that on a mixed diet the average protein intake necessary to maintain nitrogen balance has been found to be about 45 Gm. There are wide variations in individual requirements and also wide variations in the biologic value of proteins from different sources, but it is estimated that the amino acid requirements will ordinarily be met on a diet containing 70 Gm. of protein.

Amino acid mixtures have appeared on the market in various forms: protein hydrolysates or hydrolytic products of good sources of protein in solution or powdered form for oral administration or intravenous injection; mixtures of amino acids in tablet form; synthetic amino acids in tablet form; synthetic amino acids combined with vitamins in tablets and elixirs; protein meals for use in tablets or food fortification. Most tablets or elixirs supply insignificant amounts for rational use in human nutrition.

Thus far, the Council considers as acceptable for nutritional purposes only those mixtures that provide adequate amounts of each of the essential amino acids. For the present, and until more evidence becomes available, the Council restricts acceptance of such amino acid mixtures for either oral or intravenous administration to hydrolysates of suitable pure proteins (such as casein) or good sources of protein (such as blood) in which more than 50 per cent of the total nitrogen present is in the form of alpha amino nitrogen. This minimum degree of hydrolysis is considered essential to justify the designation of such products as hydrolysates and to reduce the nonantigenic properties of the mixtures used for intravenous injection and those used orally for infants and children who may be allergic to protein of the diet. The Council requires that evidence of nonantigenicity for each product should be submitted. The Council has permitted the addition of carbohydrate to such hydrolysates in proportions suitable for injection. The Council has not, as yet, accepted preparations containing added vitamins or other substances considered essential for adequate nutrition pending adequate justification for such preparations.

Hydrolysates of pure proteins such as casein, lactalbumin and fibrin are properly described as protein hydrolysates and are defined under this general heading in the monograph which follows. They may be designated as "Casein (Lactalbumin, Fibrin) Hydrolysate." Hydrolysates of good sources of protein such as blood, liver and yeast are distinguished from pure protein hydrolysates and will be individually described under separate generic designations appropriate to indicate their respective derivation, e. g., Blood (Liver, Yeast) Hydrolysate. Restoration or addition of amino acids to hydrolysates should be limited to those considered essential for human nutrition and should be sufficient to furnish the equivalent of the biologically active form in an amount proportionate to the original source or to meet actual requirements if the quantity needed is known. Products to which one or more amino acids have been restored or added or in which one or more of them have been at least partially removed should be designated as "Modified Casein (Liver, etc.) Hydrolysate." When carbohydrate such as dextrose has been added, the designation of such preparations should be expanded to indicate the carbohydrate component, e. g., "Modified) Casein Hydrolysate with Dextrose ( ) %." When such products are supplied in the form of solution for intravenous injection, the designation should be prefixed by the word "Solution" and include the per cent of hydrolysate provided, e. g., "Solution Casein Hydrolysate 5 per cent (with Dextrose 5 per cent)." Such designations do not preclude, but should be adequately displayed with, acceptable trademark names. The Council requires that all hydrolysates be labeled with the appropriate generic designation (to include dextrose or other suitable carbohydrate when this is added); the identity of the protein or source of protein from which they are derived when this is not declared in the descriptive designation; the method of hydrolysis (acid, enzymatic or other); the nature of modification in amino acid content after hydrolysis (if any); the percentage of each amino acid or its equivalent that is present, and the percentage of alpha amino nitrogen that is represented in relation to the total nitrogen content of the mixture. Council consideration of hydrolysates for acceptance is further predicated on adequate rat growth studies to demonstrate nutritive value and in the case of intravenous products also on adequate clinical evidence to demonstrate freedom from antigenic, pyrogenic and toxic properties. Claims for special therapeutic purposes of hydrolysates other than for general protein deficiencies must be supported by specific scientific evidence.

Pure synthetic mixtures of amino acids to be used for nutritional states or preparations of the individual pure amino acids for specific therapeutic purposes will be given consideration as evidence for their usefulness is established. Preparations of intact proteins used orally as food supplements are considered to be outside the purview of the Council unless specific therapeutic value is established for such products.

PROTEIN HYDROLYSATES

These are broadly defined as artificial digests of protein derived by acid, enzymatic or other hydrolysis of casein, lactalbumin, fibrin or other suitable proteins that supply the approximate nutritive equivalent of the source protein in the form of its constituent amino acids. They are required to have more than half of the total nitrogen present in the form of alpha amino nitrogen. Such preparations comprise (*a*) unmodified products in which there is neither partial removal nor restoration of any of the original amino acid precursors and for which the designation "protein (or casein etc.) hydrolysate" is restricted and (*b*) modified products to which one or more amino acids have been added or one or more of them have been at least partially removed after hydrolysis and for which the designation "modified protein (or casein etc.) hydrolysate" is required. Other labeling requirements and the permissible modifications in amino acid composition or the addition of carbohydrate are set forth in the foregoing general statement on Proteins and Amino Acid Preparations.

Actions and Uses.—Parenteral preparations are useful for the maintenance of positive nitrogen balance in conditions where there is interference with ingestion, digestion or absorption of food. These conditions are most frequently encountered in severe illness and after surgical operations involving the alimentary tract. In the acute catabolic phase of nitrogen loss in healthy persons who become suddenly ill, it may be extraordinarily difficult to achieve nitrogen balance with the amount of hydrolysate which can be administered. The acute nitrogen loss of brief severe illness has not been shown to be pernicious, and it is debatable whether hydrolysates should be employed under these circumstances. Protein hydrolysates should not be employed as a substitute for food proteins if the latter can be adequately utilized. Intravenous injection is contraindicated in severe hepatic insufficiency and in acidosis until the latter condition is corrected. Injection may produce untoward effects such as nausea, vomiting, hyperpyrexia, vasodilatation, abdominal pain, convulsions, edema at the site of injection, phlebitis and thrombosis. Care must be exercised in looking for reactions that indicate danger. Many unfavorable reactions have been traced to inadequate care in the cleanliness of equipment and also to too rapid administration of the preparation. Solutions that are cloudy, that contain sediment or that have been opened for a previous injection should not be used. Unopened solutions should be stored in a cool place.

Claims for oral use of protein hydrolysates that are shown to be adequate nutritionally should, for the present, be limited as follows: (1) in the diet of infants allergic to milk when the allergy cannot be met by other foods; (2) in the treatment of peptic ulcer and in ulcerative colitis if acceptable evidence is submitted pertaining to the product concerned, and (3) in supplementing the diet in conditions in which a specially high protein intake is indicated, when it is not feasible to accomplish this by use of ordinary foods.

Claims for supplementing the protein in other conditions are not permissible, because there is no evidence of need for such supplementation and if it should exist it could be met by the use of ordinary foods

Dosage.—See the foregoing general statement on Protein and Amino Acid Preparations. Until more is known of the individual requirements for the amino acids, the dosage to be given should be designed to supply substantial amounts of all those considered essential to meet the protein needs of the body

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Twelve dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, MARCH 6, 1948

A NATIONAL HEALTH ASSEMBLY

Mr. Oscar R. Ewing, federal security administrator, has announced the calling of a National Health Assembly in Washington, D. C., May 1-4. President Truman wrote a letter to Mr. Ewing reminding him that he (Mr. Truman) had repeatedly requested Congress to enact legislation designed to expand basic health services. The President said, "The attainment of such a goal requires the cooperation of state and local governments, voluntary organizations, the medical and health professions, as well as our citizens working together." He requested Mr. Ewing to make a comprehensive study of the possibilities of raising health levels and to report on the feasible goals which might be realized by the American people in the next decade. As a first step, Mr. Ewing announced on February 15 the appointment of "twenty-four national leaders" who had been invited to serve on the executive committee of the assembly. The assembly is to be held in the form of panel discussions, each of which will explore a specific phase of the health problem. It was anticipated that some seven hundred to eight hundred persons would attend the sessions. When Mr. Ewing made his announcement to the press, an interviewer asked him whether or not there were any political implications; the newspapers reported that he said any activity during convention year might be considered political.

Thus far the National Health Assembly bears all the stigmas—political and propagandistic—that accompanied the National Health Assembly of 1938. Under the leadership of Miss Josephine Roche that congress was overwhelmed with representatives of agencies promoting nationalized medicine in the form of compulsory sickness insurance as the one answer to the medical problem. Mr. Truman has twice affirmed his support of compulsory sickness insurance along the lines covered by the Wagner, Murray, Dingell legislation. The present executive committee includes twenty-four names already announced, of which only one is a physician; nineteen of those named have previously been associated with propaganda in behalf of compulsory sickness insurance. Mr. Ewing has added the names of three other physicians, but thus far a public announcement has not appeared. The conference of 1938 was organized with a preponderance of representatives of nonmedical groups. The nonmedical speakers were given the major portion of time on the radio, and the publicity, which was in charge of Mr. and Mrs. Ernest Lindley, greatly emphasized the propaganda in behalf of compulsory sickness insurance. The speakers, representative of governmental agencies, were given almost unlimited time and the program, which was announced by Isidor Falk in an address of more than an hour and a half, was the government's program. Actually the government's program had been fully prepared and was presented for the first time at the conference, and no attempts were made to elicit, nor was opportunity given for consideration of any other program or, indeed, for a detailed discussion of any part of the government's program. In other words, the National Health conference of 1938 was designed as propaganda and participation by the medical profession merely gave it an authenticity that it did not merit.

Mr. Ewing assures the American people in his announcement that "meeting together, spokesmen for the medical and health professions, for our great national voluntary health organizations, and for the citizens generally will have an opportunity to examine every facet of the problem." He calls for teamwork on the problems that concern all of us and he believes that the assembly will establish "a clearer picture of just how much agreement there is in certain supposedly controversial health fields." The medical profession, having participated in the conference of 1938, which was in no sense of the word a conference, cannot be condemned if it views with reluctance a call for a similar assembly, particularly in an election year and particularly just before the major political parties will be drafting the platforms on which they propose to seek public support. No doubt an assembly of qualified leaders in the field of health and medicine and research could assemble around a table or even in a small hall and by free interchange of information, experience and opinion develop a program for the nation's health which would lead to intensified activity and progress during the next ten years. Whether or not seven hundred persons can get together in a dozen or more panels and work out similar advancement is, of course, questionable. Granting that panels of thirty or forty persons can discuss the problems that will be put before them each day, the medical profession will still be concerned as to the ultimate fate of recommendations that may come from these panels. If they are to be submitted to the executive committee already set forth and if that committee is to have the final decision as to the recommendations that are to be announced to the public, the objectives of the medical profession are defeated before the assembly has been held.

In most such assemblies the opening speeches are given vast circulation throughout the nation over the radio and in the press. If the opening addresses are made by President Truman and Mr. Ewing, the medical profession already knows that they will be another endorsement of nationalized medical care and compulsory sickness insurance. What arrangements will be made for addresses by those opposed to such a program, and what opportunity will they have for reaching the public that would be reached by the other addresses? Is the new National Health Assembly to be simply another sounding board for a leftist medical program? These are questions that should be answered for the medical profession now! The implications involved in such an assembly are so serious for the medical profession that it should be called into early conference on the development of the program, the publicity and the ultimate use of the material developed by the conference if full participation by the medical profession is requested. The Board of Trustees of the American Medical Association at its recent meeting in Chicago reached this conclusion, and the authorities for the National Health Assembly have been informed of their opinion.

The Ten Point National Health Program of the American Medical Association is a sound platform for the advancement of the nation's health. It is being steadily implemented by activities of the Association and of voluntary and governmental agencies. If its objectives can be realized by intensified actions of medical, voluntary health and governmental health agencies, there will be little need for a nationalized medical care program. The progress that has been made in medicine and in medical care in the United States is the envy of all the rest of the world. It is an asset which the medical profession of this country cannot hold lightly and which it should not hazard in any ventures in which complete confidence has not been established.

THE PUBLIC WANTS A DOCTOR WHEN THEY WANT HIM:

He must work all day and half the night, and never say he's tired;
For the public look upon him simply as a servant hired.
And should he take a holiday, he'll find when he comes back,
Some patients have resented it by giving him "the sack."

From "The Song of the General Practitioner"
by J. Johnston, M.D., in the *Lancet.*

From many sections of the United States complaints have come lately that persons who have called physicians late at night have been unable to secure attendance from either those whom they considered their family physicians or from specialists or, indeed, from any physician. In one western community a fire chief gave to the press information to the effect that he had called twenty-four doctors and had been unable to secure attendance by any of them. A subsequent investigation indicated that he had actually talked only to three physicians and two osteopaths who had stated that the case was not within their province—(strange indeed!). Investigation also disclosed that instead of the 24 calls alleged to have been placed, only three physicians, all seriously ill with influenza, were contacted. Of the three, two informed the operator that if another doctor could not be obtained, they would go. Neither was called again.

Notwithstanding the explanation of these isolated instances, many physicians do dodge the making of calls on patients in the late hours of the night or early morning; the crowding of physicians' offices and hospitals makes difficult in large cities even the securing of a prompt appointment in the office. Some radio comedians are now using the public interest in the question as the basis for jibes at the medical profession; Groucho Marx recently said to one of his contestants, "Make an appointment with the doctor and probably you'll see him in two or three days."

Many persons and some physicians seem to believe that a doctor must respond to any call that comes to him. The law does not cover this situation as far as is known, but court decisions have ruled that a physician is not compelled to respond to an initial call. The Principles of Ethics are explicit:

> "A physician is free to choose whom he will serve. He should, however, always respond to any request for his assistance in an emergency or whenever temperate public opinion expects the service."

Interpretation of this statement should not be difficult. In one city recently a child was struck by an automobile and sustained a fracture. The accident occurred on a corner next to a great building in which were housed many physicians. Some one from the street who had seen the accident attempted to secure the services of a half dozen physicians who were at the time in their offices, yet all refused to respond to the call, offering as excuses the specialties which they practiced or the fact that they were at the moment engaged with a patient. Public opinion condemned them unequivocally; their failure to respond greatly injured the good will of the public for the medical profession in the community as a whole.

When the pressure on the medical profession becomes severe, as it is now in this postwar period, demands are likely to press too heavily on the available service. Organization of the medical profession to meet the emergency needs was a conspicuous part of the solution of wartime problems. Some communities have, however, established permanent organizations for attending to such demands. County medical societies in some areas maintain a physicians' telephone exchange which takes the responsibility for locating physicians if response is not made to the ringing of the telephone in the home or in the office. For meeting emergencies the exchange maintains a list of physicians who are willing to make calls at night. Many young physicians gladly list their names with such exchanges. The medical societies of the District of Columbia, of Milwaukee and of Oakland, Calif., have established physicians' service bureaus and have registered the names of physicians who are willing to respond to calls from persons unknown to them who are seeking a physician. These bureaus will supply to any caller the names of three specialists when a specialized service is requested. Information is also maintained as to physicians who are available during the day or at night and the offices in which they are available. Many of the night calls come from older physicians who request the bureau to send young practitioners on emergency calls. These are samples of specific organizations which are meeting the public demand for emergency medical service.

Actually comparatively few "night calls" are so urgent that harm would result from postponing response until morning. Nevertheless, the patient who suffers pain or the mother who is frightened over a condition in her child that she does not understand is little interested in explanations as to the percentage of emergency calls that are not really emergencies.

Intemperate discussion of this subject has caused some publications to assert that a government medical service would prevent such incidents. These statements are made without knowledge of what actually occurs when government agencies take over medical practice. When the physician is placed on a nonprofessional basis, he is likely to act like other nonprofessional employees.

Any human being who is fatigued or exhausted by long hours of work under conditions of stress and great responsibility will eventually reach a point at which response is difficult. People should understand that the physicians of the United States carried a tremendous burden during the war. The removal of one third of the medical profession from private practice placed enormous stress on those who remained at home. The young men who returned from the war have to work hard to bring themselves up-to-date and they have the same problems of housing, difficulties of securing equipment and making postwar adjustments that occur in every other occupation. These adjustments will be made gradually. Nothing is to be gained by unwarranted acrimonious and intemperate charges of failure to meet what seem to be absolute obligations.

RADIOACTIVE ISOTOPES

In this issue of The Journal Lawrence and associates report 129 cases of chronic myelogenous leukemia treated with radioactive phosphorus.[1] This treatment was developed on the past twenty years' experience of beneficial results from total body roentgen irradiation in this disease.

Radioactive phosphorus (P^{32}) in the form of isotonic sodium mono-hydrogen phosphate was used. The dosage varied from 1 to 2 millicuries once or twice a week up to a total of 40 millicuries administered intravenously over a period of seventy-two days. Extremely wide variations of response occurred. The authors believe that selective action of radioactive phosphorus provides a convenient method of giving generalized irradiation; comfortable life of patients was prolonged in this series, but measurable increases in the duration of life were not observed as compared with patients treated by roentgen ray. Absence of radiation sickness was found to be an advantage. Although they believe radiative phosphorus to be the best known therapeutic agent for chronic myelogenous leukemia, Lawrence and his co-workers say that in no sense does it cure the disease or even completely control it. Further emphasis must be placed on the search for methods other than irradiation for ultimate control of this baffling disease. This report emphasizes the fact that greatest benefit to medicine from present use of atomic isotopes will be the means they provide for more fundamental study of basic physiologic and biologic processes of the animal and human organism.

Results in the purely therapeutic field with radioactive isotopes have thus far not been startling. Radioactive iodine has produced beneficial results in hyperthyroidism and postoperative hyperthyroid recurrence, but it has not been generally effective for cancer of the thyroid. Radioactive phosphorus appears to be the best present therapeutic agent for remitting polycythemia. Certain types of neoplasm have been effectively treated by direct neutron bombardment. Most observers, however, agree that the radioactive isotopes have demonstrated little advantage over roentgen radiation other than selectivity concentration, providing for lower dosage and resultant absence of radiation sickness. Roentgen ray, gamma ray (radium), alpha and beta particle and neutron radiation produce similar effects on body tissues, although their power of penetration varies. Effects of all are most evident on primitive tissues, red and white blood cells, germ cells and cells of neoplastic tissue. Effects on other normal tissues are less but equally comparable.

The terminology associated with Lawrence's paper and others that have been reviewed indicates that physicians must now become acquainted with many new terms and concepts associated with radiation therapy and investigation with radioactive isotopes.[2] Terms such as half life, isotopes, isobars, deuteron bombardment, alpha and beta particles, gamma radiation, and expressions of nuclear formulas are, for the most part, new terms in general medicine. An excellent short review of "Nuclear Energy in Medicine"[3] appears in the advertisement section of The Journal beginning March 22, 1947. To date more than two hundred and fifty isotopes of the known ninety-six elements have been produced, and many of these are available for experimental work. Most promising isotopes for investigative study have been P^{32} (half-life 14.3 days), I^{130} (12.6 hours), I^{131} (eight days), C^{14} (25,000 years), Na^{24} (14.8 hours) and large amounts of heavy water and free deuteron (heavy hydrogen, $_1H^2$). Other useful radioactive isotopes can be developed as needed.

---

[1] Lawrence, J. H.; Dobson, R. L.; Low-Beer, B. V. A., and Brown, B. R.: *Chronic Myelogenous Leukemia*, this issue, page 672.

[2] Kennedy, J. W.: Atomic Disintegration, Occup. Med. **2**: 132-137 (Aug.) 1946. Krusen, F. H.: Atomic Energy in Medical Practice, M. Clin. North America **31**: 972-982 (July) 1947.

[3] Recent Advances in Medicine: Nuclear Energy in Medicine, J. A. M. A., Adv. 10-11 (March 29); Adv. 26-27 (April 5); Adv. 22-23 (April 12); Adv. 26-27 (April 19), and Adv. 26-27 (April 26).

Animal experimentation is now under way to determine, through use of radioactive tracer substances, the true biologic and physiologic activity of such elements as phosphorus, iron, sodium, carbon and iodine in the animal body and the manner in which these elements and certain of the organic compounds enter into animal metabolism. In plant metabolism use of tracer substances has already resulted in new understanding of the processes of photosynthesis.[4]

Experimentally produced mutations in plants, Drosophila fly, Neurospora and other lower animal and plant forms indicate that great caution must be exercised in therapeutic and investigative work with radioactive isotopes in human beings. Roentgen rays, gamma rays, beta particle and neutron bombardment have demonstrated their ability to cause break in chromosomal structure and destruction of genes.[5] Broken chromosomes on reuniting lack essential genes, which results in mutation in offspring.[6] Such mutations are represented by malformations or lethal lacks in progeny. They are also hereditarily transmissible. Effects of radiation may be cumulative on chromosomal structure, although there is some evidence that changes are reversible. Experiments with Tradescantia pollen[7] show that effects are twice as great on pollen grains of the haploid chromosomal number which corresponds to the germ cell of human beings. Observers have indicated that mutations brought about by radiation were wholly destructive.[8] Mutations were mainly those which might occur naturally, but artificial radiation greatly accelerates such occurrence. Therefore it is believed that positive or beneficial mutation may normally be brought about by action of chemicals such as colchicine, individual exchanges of thermal agitation and ultramicroscopic accidents of a physicochemical nature, rather than by radiation effect.

H. J. Muller[9] states: ". . . like most species, we are already encumbered by countless undesirable mutations, from which no individual is immune. In this situation we can, however, draw the practical lesson, from the fact of the great majority of mutations being undesirable, that their further random production in ourselves should so far as possible be rigorously avoided. As we can infer with certainty from experiments on lower organisms that all high-energy radiation must produce such mutations in man, it becomes an obligation for radiologists—though one far too little observed as yet in most countries—to insist that the simple precautions are taken which are necessary for shielding the gonads, whenever people are exposed to such radiation, either in industry or in medical practice. And, with the coming increasing use of atomic energy, even for peace-time purposes, the problem will become very important of insuring that the human germ plasm—the all-important material of which we are the temporary custodians—is effectively protected from this additional and potent source of permanent contamination."

These implications warn that therapy or experimentation with radioactive isotopes in human beings during reproductive years may result in destructive biologic changes in progeny.

---

[4] Warren, S.: Physiologic Effects of Nuclear Energy, Occup. Med. **2**: 447-451 (Nov.) 1946.

[5] Beadle, G. W.: High Frequency Radiation and the Gene, paper presented before the George Westinghouse Centennial Forum, Pittsburgh, May 16-18, 1946.

[6] Catcheside, D. G., and Lea, D. E.: The Effect of Ionization Distribution on Chromosome Breakage by X-Rays, J. Genetics **45**: 186-196 (Oct.) 1943.

[7] Lea, D. E., and Catcheside, D. G.: The Mechanism of the Induction by Radiation of Chromosome Aberrations in Tradescantia, J. Genetics **44**: 216-245 (Dec.) 1942.

[8] Snow, W.: Recovery from Radiation Mutations of the Genes, Am. J. Roentgenol. **56**: 85-88 (July) 1946.

[9] Muller, H. J.: The Production of Mutations, J. Hered. **38**: 259-270 (Sept.) 1947; front cover, ibid.

Current Comment

THE HEART AND BLOOD IN FRESH WATER AND SEA WATER DROWNING

With all the studies that have been made on the various biologic mechanisms involved in drowning, investigators have only recently considered the possibility of a difference in the basic mechanisms of death from drowning in fresh water as contrasted with drowning in salt water. Swann, Brucer, Moore and Vezien in the Physiology Laboratory of the University of Texas Medical Branch[1] have focused attention on the significance of blood concentration and dilution in drowning, depending on whether or not submersion occurs in fresh water or sea water. They find that there is an abrupt and pronounced hemodilution in drowning in fresh water as shown by rapid falls in plasma protein, hemoglobin, chloride and other constituents of the blood. They find the converse, a strong hemoconcentration, in drowning in sea water. Their figures show that in fresh water drowning the blood may dilute to as much as twice its volume. In sea water drowning, however, nearly one third of the water of blood may be removed with rather startling rapidity. These sudden alterations in the concentration of blood might be expected to have significant effects on the heart. The Texas workers find that ventricular fibrillation occurs within three to five minutes after submersion in two thirds of the dogs studied in fresh water drowning. Cardiac fibrillation was not observed in any of the dogs drowned in sea water. During sea water drowning the heart does not fail as quickly as in fresh water drowning. The heart may retain fair functional activity for nearly twice as long in sea water drowning as in fresh water drowning. Apparently, then, there is a greater chance for successful resuscitation in the case of drowning in sea water than in the case of drowning in fresh water.

---

[1] Swann, H. G.; Brucer, M.; Moore, C., and Vezien, B. L.: Fresh Water and Sea Water Drowning: A Study of the Terminal Cardiac and Biochemical Events, Texas Rep. Biol. & Med. **5**: 423-437, 1947.

ORGANIZATION SECTION

Official Notes

HEALTH APPRAISAL OF SCHOOL CHILDREN

A pamphlet outlining standards for determining the health status of school children is now being distributed by the Bureau of Health Education of the American Medical Association.

The brochure is entitled "Health Appraisal of School Children" and is a report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association. Recommendations as to how the teacher and the nurse may aid the physician with nonmedical portions of the examination are made. Suggestions regarding periodic medical examinations, special examinations and health inspections are also given. The material was edited by Dean F. Smiley, M.D., and Fred V. Hein, Ph.D., of the Bureau of Health Education Staff.

A complimentary copy will be sent to physicians, teachers and public health workers on request.

Washington Letter

(From a Special Correspondent)

March 6, 1948.

Defense Secretary Recommends Reexamination of Pensioned Officers

Defense Secretary Forrestal has recommended to Chairman Elston of the House Armed Services Subcommittee investigating retirement and disability pensions that the more than thirty thousand Army, Navy and Air Force officers who have received tax free disability pensions since 1939 should be reexamined. He urged that the tax exemption be allowed only on the proportion of payments granted for actual disability. Mr. Forrestal pointed out that the basic retirement law was enacted on Aug. 3, 1861, and he remarked that "it is hardly surprising that a law of such antiquity needs revision."

Taft-Fulbright Bill for Department of Health, Education and Security

The Taft-Fulbright bill to create a new federal Department of Health, Education and Security was commended by Oscar R. Ewing, federal security administrator, in an address before an American Legion Child Welfare Conference. He said: "Passage of this bill will mark a great advance in our efforts to achieve the goals of our Chapter of Human Resources." He pointed out that there was cabinet representation for various economic groups, such as farmers and businessmen, but none for Americans as human beings.

Use of Atomic Energy on Blood Ailment Described

Sumner T. Pike, member of the United States Atomic Energy Commission, told participants in Washington Building Congress that radioactive isotopes of phosphorus are being used to treat a rare blood disease, polycythemia vera. He explained that the ailment causes overproduction by the bone marrow of the cells from which red corpuscles are formed, producing an excess of red corpuscles and an extra load on the heart. The isotope goes directly to the cells and curbs their activity, he said.

President Truman Asks Corrective Legislation on Disability Retirement Pensions

Approving changes recommended by Secretary of Defense James Forrestal on disability retirement pensions for officers of the armed forces, President Truman has asked Congress to write new rules. He wrote to Representative Andrews, Republican of New York, and Senator Gurney, Republican of South Dakota, suggesting corrective legislation. They head the House and Senate Armed Forces Committees.

Medical Legislation

MEDICAL BILLS IN CONGRESS

Local Public Health Units

A bill introduced by Senator Saltonstall, Massachusetts, for himself and Senator Cordon, Oregon, and Senator Hill, Alabama, S. 2189, proposes to enact the "Local Public Health Services Act of 1948." It would authorize an appropriation annually of as much as may be necessary for allotment to the states to assist them in developing and maintaining **local public health units** organized to provide basic full time public health services and in the training of all types of personnel for local public health work. The surgeon general of the United States Public Health Service would be authorized to prescribe by regulation the types of health services which are to be considered basic public health services. State plans must be submitted to the surgeon general for approval.

Federal Aid to Medical Students

Representative King, California, proposes by H. Res. 466 to instruct the House Committee on Interstate and Foreign Commerce to formulate, consider and report to the House appropriate legislation authorizing the Public Health Service to establish and finance **medical scholarships** in recognized medical schools of the United States.

Chiropractors and the Veterans Administration

A bill introduced, by request, by Representative Patterson, Connecticut, would authorize the **appointment of chiropractors** in the Department of Medicine and Surgery of the Veterans Administration.

Social Security Benefits

Representative Kean, New Jersey, proposes by H. R. 5399 to extend the coverage of the federal old age and **survivors insurance** system to include the self employed, employees of nonprofit institutions and agricultural labor, and by voluntary compacts to employees of state and local governments. Another bill, H. R. 5299, introduced by Representative MacKinnon, Minnesota, would extend old age and survivors insurance benefits to certain employees of hospitals.

Miscellaneous

H. R. 1275, introduced by Representative Cole, New York, would authorize the payment of certain **claims for medical treatment** of persons in the naval service. This bill has been reported to the House by the Committee on Armed Services with recommendation that it pass. Another bill, also introduced by Representative Cole, H. R. 5494, proposes to provide **dental treatment** for dependents of naval and marine corps personnel. A bill introduced by Representative Andresen, Minnesota, H. R. 4739, providing for the free importation of **exposed x-ray film**, has passed the House. Representative Dirksen, Illinois, proposes by H. R. 5307 to amend an act providing for the establishment of a hospital center in the District of Columbia in such a manner as to authorize the making of grants to private agencies to enable them to make **surveys and investigations**, and to plan, design, construct, remodel, relocate, rebuild, renovate, extend, equip, furnish or repair hospital facilities in the District of Columbia.

The bill to amend the Public Health Service Act in regard to certain matters of personnel and administration, S. 1454, has passed the Senate and House. It contains an authorization for the appointment of osteopaths as commissioned medical officers in the service.

STATE LEGISLATION

Arizona

Bills Introduced.—H. 2-xxxxx proposes the **creation of the office of director** of the state department of public health and sets forth the eligibility requirements thereof, among which are that the applicant must be a reputable physician licensed to practice in Arizona and a graduate of a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association. H. 4-xxxxx proposes the enactment of an *Arizona hospital survey and construction act* for the purpose of conducting a survey of existing hospital facilities and a construction program for the building of additional needed facilities. The proposal provides for the appointment of an advisory survey and construction council, one member of whom shall be chosen from a panel of four submitted by the Arizona medical association and another member of whom shall be chosen from a panel of four submitted by the Arizona Society of Osteopathic Physicians and Surgeons.

Massachusetts

Bills Passed.—H. 89 passed the house February 18. To amend the medical practice act, it proposes to authorize the board to accept the certificate of the **national board of medical examiners** or the certificate of the national board of examiners for osteopathic physicians and surgeons of the American Osteopathic Association, in place of its own professional examination, provided the applicant has not previously attempted unsuccessfully to secure registration in the state. H. 103 passed the house February 18. Relating to the physical **examination of school children,** it proposes that the board of health shall cause every child in the public schools to be separately and carefully examined at certain intervals to ascertain defects in sight or hearing and other physical defects tending to prevent his receiving the full benefit of his school work. The proposal also would require that a physical record of each child be kept in such form as the department of health may require. H. 107 passed the house February 18. It proposes that certain laws now relating specifically to **gonorrhea and syphilis** shall be made applicable to all venereal diseases. H. 108 passed the house February 18. It proposes the repeal of an existing law requiring **mandatory destruction** of certain laboratory, dispensary and morbidity reports relating to gonorrhea and syphilis at the expiration of five years from the time such reports are made. H. 110 passed the house February 18. To amend the law designating certain **diseases which physicians must report** to the department of public health. It proposes that the department may designate other diseases not specifically mentioned in the statute, which shall be reported by physicians but which shall not thereby be deemed to have been declared diseases dangerous to the public health.

Mississippi

Bill Introduced.—S. 187 proposes regulations providing for treatment and/or assistance in obtaining treatment and diagnosis of **patients having cancer** or suspected of having cancer.

Bill Enacted.—H. 161, approved February 18, amends the 1946 **hospital survey and construction act,** by including nonprofit hospitals and facilities among those organizations eligible for grants in aid.

New Jersey

Bill Introduced.—A. 193 proposes a complete revision of the **workmen's compensation act.**

Bill Passed.—A. J. Res. 2 passed the assembly February 16. It proposes the creation of a commission to make a **survey of all voluntary charitable hospitals** throughout the state to determine what steps can be taken to relieve existing overcrowding and to furnish additional revenue for operating costs to relieve the burden now being carried by the voluntary charitable hospitals.

New York

Bills Introduced.—CCH A. R. 121 proposes the creation of a committee to make a thorough study and investigation into the illegal practice of voluntary **euthanasia of incurable sufferers** in the state and of the law penalizing this practice as murder in order to determine whether amendment of such law would promote the public welfare. A. 1575 and S. 1341, to amend the workmen's compensation law, propose to vest in the **local county medical society** duties now vested in the medical practice committee. A. 1609, to amend the public health law, proposes the creation of a board of **examiners for the practice of massage** and defines massage as the stroking, kneading, tapping or rolling with the hands, or with other instrumentalities, of the human body for hygienic or remedial purposes, for the purposes of relieving, alleviating or reducing affected parts thereof, but shall not include reduction of a fracture or dislocated bone. A. 1731, to amend the public health law, proposes to require every physician to give immediate notice to the health officer of the county, city, town or village of **every case of poliomyelitis** under his care. This proposal would also create a division in the state department of health to be known as the division of infantile paralysis control. A. 1929 and A. 2071, to amend the penal law, propose to require all persons, firms or corporations owning or operating a hospital, clinic, sanatorium or similar institution to have a duly qualified physician or **intern in attendance in its ambulances** when they are being used for the transportation to the institution of any sick or wounded person. S. 1319, to amend the public health law, proposes the creation and establishment of a state hospital with adequate facilities for the diagnosis, **treatment and control of cancer** and allied malignant diseases. S. 1423, to amend the public health law, proposes that immediately **following the birth of a child in a hospital** and prior to the removal of such child from the delivery room it shall be the duty of the physician, midwife or person acting as midwife to cause the footprints of such child and the thumbprints of the mother of such child to be taken in duplicate. S. 839 proposes the creation of a commission to study and survey the prevalence and facilities for the **treatment of infantile paralysis.** S. 942 proposes the creation of a commission to formulate a program for the **eradication of rabies.**

Rhode Island

Bills Introduced.—H. 698, to amend the general laws relating to the **health of school children,** proposes to require every superintendent of schools to cause such examinations of school children as may be necessary for the purpose of guarding against outbreaks of infantile paralysis within the schools of any city or town. H. 706 proposes to authorize the department of health to create and maintain a **division of industrial hygiene** to investigate places of employment and study those conditions which might affect the health of the worker.

South Carolina

Bill Introduced.—H. 1214 proposes to put sulfanilamide, sulfathiazole, sulfapyridine, sulfadiazine, aminopyrine, thyroid and other antifat preparations, together with any other drugs declared to be **"dangerous drugs,"** on a prescription basis.

Bills Passed.—H. 1184 passed the House February 18. It proposes to authorize any person subject to **state income taxes** to deduct all costs of hospitalization, medical services and medicine, on the same basis as is now allowed to persons paying federal income taxes.

Coming Medical Meetings

Alabama, Medical Association of the State of. Mobile, April 15-17. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

American Association of Anatomists, Madison, Wis., April 21-23. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Industrial Physicians and Surgeons, Boston, March 28-April 4. Dr. Frederick W. Slobe, 28 E. Jackson Blvd., Chicago 4, Secretary.

American Association of Pathologists and Bacteriologists, Philadelphia, Jefferson Medical College, March 12-13. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland 6, Secretary.

American Broncho-Esophagological Association, Atlantic City, Chalfonte-Haddon Hall, April 7-8. Dr. Paul H. Holinger, 700 N. Michigan Ave., Chicago 11, Secretary.

American College of Allergists, New York, Hotel Pennsylvania, March 12-14. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College of Physicians, San Francisco, Civic Auditorium, April 19-23. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Secretary.

American Dermatological Association, Coronado, Calif., April 26-29. Dr. Harry R. Foerster, 208 E. Wisconsin Ave., Milwaukee, Secretary.

American Gastro-Enterological Association, Atlantic City, Claridge Hotel, April 30-May 1. Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco, Secretary.

American Laryngological Association, Hot Springs, Va., April 14-15. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia 2, Secretary.

American Laryngological, Rhinological and Otological Society, Atlantic City, April 7-9. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Orthopsychiatric Association, New York, Hotel Commodore, April 12-14. Nina Ridenour, Ph.D., 1790 Broadway, Rm. 916, New York 19; Secretary.

American Otological Society, Hot Springs, Va., April 12-13. Dr. Gordon D. Hoople, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

American Physiological Society, Atlantic City, March 15-19. Dr. Maurice Visscher, University of Minnesota, Minneapolis 14, Secretary.

American Society for Experimental Pathology, Atlantic City, March 15. Dr. Frieda S. Robscheit-Robbins, 260 Criddenden Blvd., Rochester 7, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Atlantic City, March 14-19. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.

American Society of Biological Chemists, Atlantic City, March 14-19. Dr. Otto A. Bessey, Public Health Research Institute, New York 19, Secretary.

Arkansas Medical Society, Little Rock, Robinson Auditorium, April 15-17. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

California Medical Association, San Francisco, April 11-14. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, Palmer House, March 2-5. Dr. Willard O. Thompson, 30 N. Michigan Blvd., Chicago 2, Secretary.

Connecticut State Medical Society, Fairfield, April 27-29. Dr. Creighton Barker, 258 Church Street, New Haven, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, Hotel Adolphus, March 15-18 Dr. Glenn D. Carlson, 1133 Medical Arts Bldg., Dallas, Secretary.

Federation of American Societies for Experimental Biology, Atlantic City, March 15-19. Dr. William H. Chambers, Medical Division, Army Chemical Center, Maryland, Secretary.

Florida Medical Association, St. Augustine, Ponce de Leon Hotel, April 11-14. Dr. Robert B. McIver, 111 W. Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta, April 27-30. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.

Iowa State Medical Society, Des Moines, April 18-21. Dr. John C. Parsons, 406 Sixth Ave., Des Moines 9, Secretary.

Louisiana State Medical Society, Monroe, April 12-14. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans 13, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 27-28. Dr. George H. Yeager, 1211 Cathedral St., Baltimore, Secretary.

Michigan Postgraduate Clinical Conference, Detroit, Book-Cadillac Hotel, March 10-12. Dr. H. H. Cummings, 2014 Olds Tower, Lansing 8, Chairman.

Missouri State Medical Association, St. Louis, Hotel Jefferson, March 14-17. Mr. T. R. O'Brien, 634 N. Grand Blvd., St. Louis 3, Exec. Secretary.

New England Dermatological Society, Boston, April 14. Dr. G. Marshall Crawford, 1180 Beacon St., Brookline, Mass., Secretary.

New Jersey, Medical Society of, Atlantic City, Haddon Hall, April 26-29. Dr. Earl LeRoy Wood, 315 W. State St., Trenton, Secretary.

Northern Tri-State Medical Association, Findlay, Ohio, April 13. Dr. Don F. Cameron, 247 W. Berry St., Ft. Wayne, Ind., Secretary.

Ohio State Medical Association, Cincinnati, March 30-April 1. Mr. C. S. Nelson, 79 E. State St., Columbus 15, Secretary.

Southeastern Surgical Congress, Hollywood, Fla., Hollywood Beach Hotel, April 5-8. Dr. Benjamin T. Beasley, 45 Edgewood Avenue S. E., Atlanta 3, Ga., Secretary.

Southwest Allergy Forum, Oklahoma City, April 5-6. Dr. Fannie Lou Leney, 1200 N. Walker St., Oklahoma City, Secretary.

Tennessee State Medical Association, Nashville, April 13-14. Dr. W. M. Hardy, 706 Church St., Nashville 3, Secretary.

Texas, State Medical Association of, Houston, Rice Hotel, April 26-29. Dr. Harold M. Williams, 1404 W. El Paso St., Fort Worth, Secretary.

United States-Mexico Border Public Health Association, Laredo, Texas and Nueva Laredo, Mexico, March 20-22. Dr. M. F. Haralson, U. S. Court House, El Paso, Texas, Secretary.

Western Section American Urological Association, Victoria, B. C., Empress Hotel, April 19-21. Dr. Adolph A. Kutzmann, 1930 Wilshire Blvd., Los Angeles, Secretary.

GOVERNMENT SERVICES

NAVY

MEDICAL EXHIBITS

The Bureau of Medicine and Surgery has in preparation an exhibit on "Highlights of Military Surgery in World War II," to be presented at the sixth International Assembly of the International College of Surgeons in Rome, Italy, May 16-23. The surgical advances of World War II are depicted in three phases: (1) "Thoracic and Neurosurgical Advances," to be supervised by Comdr. Morris Weintrob, U. S. N. R. (2) "Rehabilitation of the Amputee," to be supervised by Capt. Henry H. Kessler, U. S. N. R., and to be demonstrated by 14 patients provided by the Italian government, and (3) "Reconstructive Surgery and Maxillofacial and Ocular Prosthesis" will also be under the supervision of Commander Weintrob. After the display in Rome, the Bureau of Medicine and Surgery will use the exhibit as a part of the over-all medical reserve training program in all naval districts in the United States.

The Navy exhibit, "Medicine at Operation Crossroads," presented at the Centennial Session of the American Medical Association in Atlantic City, N. J., last June and at the Texas State Fair in Dallas, was presented also at the New Orleans Graduate Medical Assembly, February 23-26. The exhibit demonstrates the A and B tests at Bikini and the radiologic and damage control safety precautions which were practiced during the tests. These safety precautions proved adequate, as no injury to personnel resulted from either test. The exhibit, presented in three phases, was supervised by Capt. Rupert H. Draeger (MC), Lieut. Comdr. Royce K. Skow (MSC) and Lieut. Carl P. Carlson (MC).

GRADUATE TRAINING

The Advisory Board of the Bureau of Medicine and Surgery at a meeting on February 11 approved the following officers for graduate training:

Lieut. Comdr. John L. Conley (MC), course in electrocardiology at Georgetown University, Washington, D. C.; Lieut. (jg) John M. Jones (MC), residency in internal medicine at the naval hospital, San Diego, Calif.; Lieut. (jg) Byron T. Eberly (MC), residency in otolaryngology at a naval hospital to be designated; Lieut. (jg) William S. Carter (MC), residency in psychiatry at the naval hospital, Philadelphia; Comdr. John F. McMullin (MC), fellowship in psychiatry at the Henry Phipps Institute, Johns Hopkins University, Baltimore, and Comdr. Clinton H. Bagenstose (MC), training in psychoanalysis at the Boston School of Psychoanalysis.

NEW REGULAR OFFICERS

The following naval medical officers were recently transferred from the Naval Reserve to the Regular Navy:

Comdr. Archibald Maurice Ecklund, Naval Hospital, Mare Island, Calif.
Lieut. Comdr. Henry W. Miller, Naval Hospital, Great Lakes, Ill.
Lieut. (jg) Jay Standring Broadbent, Naval Hospital, Long Beach, Calif.
Lieut. (jg) Adolphus William Dunn, Naval Hospital, San Diego, Calif.
Lieut. (jg) Newman Avery Hoopingarner, Naval Hospital, St. Albans, N. Y.
Lieut. (jg) Charles Joseph Molnar Jr., Naval Hospital, Philadelphia.
Lieut. (jg) Ernest Sylvester Redfield Jr., Naval Hospital, St. Albans, N. Y.
Lieut. (jg) Stanley Elwin Reese, Naval Hospital, Long Beach, Calif.
Lieuts. (jg) Mack M. Hill Jr. and John M. Jones, both of Naval Medical Unit, U. S. Public Health Service Hospital, Fort Worth, Texas.

MEDICAL HISTORY OF WORLD WAR II

The Publications Division of the Bureau of Medicine and Surgery is compiling a naval medical history of World War II under the editorial direction of Capt. L. H. Roddis (MC). Capt. E. R. Hering (MC), 2d Marine Division, Camp Lejeune, N. C., and Capt. M. B. Sulzburger, U. S. N. R., of the Skin and Cancer Unit, New York Post Graduate Hospital, will contribute monographs on amphibious warfare and dermatology, respectively. These will be published in pamphlet form prior to the release of the completed volume.

COLLOQUIUM ON RESEARCH

A colloquium on naval medical research was conducted at the Naval Medical Research Institute, Bethesda, Md., February 19 to 21, under auspices of the Medical Sciences Division of the Office of Naval Research.

About two hundred attended. Many prominent persons associated with the nation's leading research laboratories and universities were on the program. Opening remarks were given by the honorable Mr. John M. Brown, Assistant Secretary of the Navy for Air, and by Rear Admiral Paul F. Lee, chief of naval research, U. S. Navy.

MEDICAL LOGISTICS

A didactic course on medical logistics was presented at the Naval Medical School, Bethesda, Md., on February 16-17. All officers of the Navy Medical Corps and Medical Service Corps on duty in this vicinity were invited to attend. Rear Admiral Paul M. Albright, assistant chief, Bureau of Medicine and Surgery for Planning and Logistics, outlined the scope of medical logistics. All lecturers had extensive experience in logistics during the war. This course has been added for the first time to the curriculum of the Naval Medical School.

U. S. S. PETROF BAY CITED

The Presidential Unit Citation has been awarded to the U. S. S. *Petrof Bay* and her attached Air Squadrons "for extraordinary heroism in action against enemy Japanese forces in the air, ashore and afloat. A highly disciplined and superbly coordinated team, the *Petrof Bay* and her Air Squadrons caused serious losses to the enemy . . ., achieving a distinctive combat record which reflects the highest credit on her gallant officers and men and on the United States Naval Service."

GRADUATION EXERCISES

The National Naval Medical Center, Bethesda, Md., held graduation exercises February 28 for students who completed advanced courses at the Naval Medical School and the School of Hospital Administration. The principal speakers were Rear Admiral Lamond Pugh (MC), deputy chief, Bureau of Medicine and Surgery, and Dr. Walter A. Bloedorn, dean of George Washington University School of Medicine.

PERSONALS

Capt. Everett B. Keck (MC) has been ordered to the staff of the commander, Naval Forces, Mediterranean, as fleet surgeon. He is leaving the U. S. Naval Hospital, Brooklyn, where he has served as chief of surgery since March 1946.

Rear Admiral Clarence J. Brown, of the Bureau of Medicine and Surgery, addressed the District of Columbia Medical Society, Washington, D. C., March 3, on "Medical Preparedness in Atomic Defense."

Lieut. Comdr. Thomas E. Shea (MSC) was transferred from the Medical Research Institute, Bethesda, Md., on February 9 to Oak Ridge, Tenn., for a course on radioactive substances under the auspices of the Armed Forces Special Weapons Project, Washington, D. C.

VETERANS ADMINISTRATION

OSTEOPATHS TO WORK WITH VETERANS

Osteopathic physicians now are authorized to provide outpatient treatment within certain limits to veterans with service-connected disabilities. Dr. Paul B. Magnuson, chief medical director of the Veterans Administration, said that "within the limits of practice of the healing art imposed by their respective state licenses, osteopathic physicians, when their services are requested by veterans, may be designated to provide outpatient treatment, on a fee basis, for service-connected disabilities under the same rules and regulations as govern such services by doctors of medicine." Public Law 293, 79th Congress, authorizes the Veterans Administration to hire doctors of osteopathy to work with veterans. All treatment given by doctors of osteopathy or doctors of medicine under the "home town" medical care program must have prior approval of the agency.

REPAIR OF BLIND VETERANS' EQUIPMENT

The Veterans Administration announces that blind veterans who have been issued equipment to aid them in overcoming their handicap may now obtain minor repairs to the equipment without prior approval of the Veterans Administration. Such veterans are receiving prosthetic service cards similar to those used by amputees to obtain minor repairs, and by presenting them to any repair shop in any section of the country, blind veterans will receive repair service up to a limit of $20 without prior approval of the Veterans Administration. Repairs to the following items are authorized under this new plan: typewriters, braille writers, braille watches, radios (excluding batteries), recording equipment and electric razors. The cards will be issued by the prosthetic appliances unit in each regional office; eligible veterans may call for them at their convenience. These cards do not authorize the purchase of new appliances, aids or supplies.

PRESCRIPTIONS FOR VETERANS

About 30,000 pharmacies throughout the country, taking part in the Veterans Administration home-town pharmacy program, filled more than three-quarters of a million prescriptions for veterans during 1947. The veterans were undergoing outpatient treatment for service-connected ailments in Veterans Administration clinics or with private physicians. Under agreements between the Veterans Administration and state pharmaceutic associations in forty-six states, the District of Columbia and Hawaii, private pharmacists have been authorized to fill prescriptions for eligible former servicemen at government expense. Also, during the past year, some two hundred pharmacies in veterans' hospitals, homes and regional offices prepared an estimated four million prescriptions for patients. In addition, they supplied large amounts of routine medicaments to surgical and medical services in the hospitals. Veterans Administration pharmacies have been supplied with the latest in pharmaceutic dispensing equipment and are required to have adequate reference libraries with leading professional journals.

PATIENTS STUDY WHILE BEDRIDDEN

Veteran students in Oklahoma and Arkansas colleges, forced to drop out of school to enter a Veterans Administration hospital for treatment, can continue their studies while bedridden. Under agreements between the colleges and veterans' hospitals in Fayettesville, Ark., and Oklahoma City, the schools send correspondence course material to student-patients in the two hospitals. Members of the Veterans Administration educational therapy staff assist the veterans in preparing their lessons and administer tests and examinations. Periodic lesson reports and examinations are returned to the colleges for grading. Patients who pass their bedside courses receive full credit and, when they are discharged from the hospital, are enabled to continue their education at an advanced level.

MISCELLANEOUS

CARDIAC PATIENTS REHABILITATED

The Federal Security Administrator, Oscar R. Ewing, stated in connection with National Heart Week that through the services of the state-federal program of vocational rehabilitation, 7,000 persons disabled by cardiac disorders had been prepared for and placed in suitable occupations so that they could make their own living.

Michael J. Shortley, director, Office of Vocational Rehabilitation, expressed the belief that greater numbers of sufferers from heart disease will be rehabilitated as the availability of the state-federal services becomes more generally known. He added:

"The 7,000 men and women, all of working age, were rehabilitated between 1943, when the program of vocational rehabilitation for disabled civilians was expanded, and 1947. . . . Their comeback has been achieved through state vocational rehabilitation agencies in each of the forty-eight states, the District of Columbia, Alaska, Hawaii and Puerto Rico, which serve not only persons with cardiac disorders, but also those with other types of disabilities."

The services provided by the state rehabilitation agencies include: Thorough physical examinations to determine extent of disability; medical, surgical, psychiatric and hospital care, if necessary, to reduce or remove the disability; hearing aids, artificial limbs, braces, eyeglasses and the like, to increase work ability; counsel and guidance to select the right job; training for employment; placement on the right job, and follow-up to make sure that the worker and the job are properly matched.

Physical examinations, counsel and guidance, training, placement and follow-up are without cost to the individual; other necessary services may be provided from public funds to the extent that the disabled person is unable to meet them with his own resources.

ATOMIC ENERGY FELLOWSHIPS

The selection of candidates for fellowships provided by the Atomic Energy Commission to train qualified persons in atomic medicine and biology will be carried out by the National Research Council. The program is expected to continue for about five years, and about seventy-five fellows will be selected each year from physicians and doctors of philosophy and biologic sciences. The fellowships will be for two years. The program calls also for one hundred fellows without advanced degrees to take one year of training in health physics. The commission desires these fellows from all geographic areas in the country, but they will have some latitude in selecting the institution for their training. The commission, it is said, will have plenty of jobs in its own installations after this training, but the fellows who complete the course will not have to agree to work for the Atomic Energy Commission.

SEMINAR ON RAT CONTROL

The Fish and Wildlife Service of the Department of the Interior held a seminar on rat control in New York February 18, preliminary to the national urban rat control campaign which will be held during March and April as a part of the President's Emergency Food Conservation Program. The damage caused by rats in this country is estimated at $2,000,000,000 a year, half of which is in the destruction of food. The seminar was planned to aid the many industries that have rat control problems. Among those present was Hamilton M. Warren, vice president of the National Carbon Company and chairman of the National Committee on Rat Control, and experts from the Fish and Wildlife Service.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ARIZONA

X-Ray Unit for State Health Department.—The Arizona State Department of Public Health has recently taken delivery on a bus-type x-ray unit that has been on order for about two years. It started its tour of the state in Santa Cruz County, adjoining the Mexican border, about March 1.

ARKANSAS

Cancer Fund Campaign.—The University of Arkansas School of Medicine is conducting a campaign for $50,000 to provide adequate facilities for diagnosis and treatment of cancer. The fund will be used principally to purchase equipment for the department of radiology, an additional therapy unit, and to augment personnel and supplies. Figures demonstrating the increase in cancer in the state were reported by heads of the departments of radiology, pathology and gynecology.

CALIFORNIA

Personals.—The degree of doctor honoris causa has been conferred on Wendell M. Stanley, Ph.D., Nobel laureate in chemistry, by the rector of the Sorbonne at ceremonies at the University of Paris, France. Dr. Stanley, recently appointed to the faculty at the University of California, Berkeley-San Francisco, was not present at the ceremonies, his degree being received by a representative of the U. S. Department of State on his behalf.——Dr. Jacob C. Geiger, director, San Francisco Department of Public Health, has been appointed by the Bureau of Naval Operations to assist in the development of a public ealth program in Guam.——Dr. James N. De Lamater, assoiate professor of medicine, has been appointed assistant dean f the University of Southern California School of Medicine, Los Angeles, to succeed Dr. Anson P. S. Hoyt, who has held he position for six years. Dr. De Lamater came to Southern California in 1945. As a commander in naval service during World War II, he was head of the department of epidemiology t the Naval Medical Center in Washington, D. C., and while n the Southwest Pacific was director of the disease control rganization of the Seventh Naval Fleet. Dr. Hoyt will do acteriologic research in the tuberculosis control division of the U. S. Public Health Service with laboratories located at the Barlow Sanatorium, Los Angeles. He will continue to serve he university as professor of bacteriology in the medical school, with which he has been affiliated since 1931.

FLORIDA

Hospital Honors Drs. Peek and Watt.—The staff and board of trustees of Munroe Memorial Hospital, Ocala, honored Drs. Eugene G. Peek and Harry F. Watt for their many years of service to the hospital at a dinner recently. Dr. Peek was cited for his outstanding contributions to organized medicine in the state and his many activities in civic and state organizations. Dr. Watt's record in World War I, his service as Ocala's health officer and his participation in medical and service organizations were reviewed.

Dr. Roland Decorated by China.—The Chinese government has awarded to Dr. Paul S. Roland, Miami Beach, the Special Breast Yon Hui with ribbon and diploma in consideration of services achieved in conformity with conditions laid down in article 6 of the regulations governing decorations and awards. Lieutenant Colonel Roland was formerly chief liaison officer, 42nd Regiment, 14th Division, new 6th Army of China. He was taken prisoner by the Japanese, was on the "Bataan march of death" and later in Japanese prison camps. At great personal risk he cared for the sick, and he is said to have saved many lives under extremely difficult circumstances.

ILLINOIS

Diabetes Increasing in State.—Statistics released by the state director of public health February 18 show an increase in diabetes in the state. Deaths to Nov. 1, 1947, numbered 2,284, setting a rate of 33.4 per hundred thousand population as against a rate of 31.5 for the comparable period of 1946, when 2,103 deaths were reported. There were 1,581 deaths in 1926, 2,293 in 1936 and 2,541 in 1946. Diabetes ranks eighth as a cause of death in Illinois.

Chicago

The Koessler Fellowship.—The Jessie Horton Koessler Fellowship of the Institute of Medicine of Chicago for the aid of research will be available on Sept. 1, 1948. The stipend is $500 a year with the possibility of renewal for one or two years. Applications will be received until July 1, 1948 and should be sent in quadruplicate to Dr. Paul R. Cannon, chairman of the committee, 950 East Fifty-Ninth Street, Chicago 37.

Moorehead Memorial Library.—The Frederick B. Moorehead Memorial Library in Oral and Maxillofacial Surgery will be established at the University of Illinois College of Dentistry. A gift of $2,864 from the University of Illinois Dental Alumni Association represents the first instalment of funds for the project. The library is to contain books, manuals and current periodicals. Dr. Moorehead served as the first dean of the University of Illinois College of Dentistry and as head of the department of oral surgery from 1912 until his death in August 1944.

Chicago Surgical Society Annual Prize.—The Chicago Surgical Society awards annually a prize for a manuscript describing experimental work in experimental and clinical surgery. The following criteria are used by the judges: (1) the paper must represent original work of one man aided by associates, but not necessarily based on a completely original idea; (2) illustrations must be original and not borrowed from someone else's correlated work; (3) the paper must never have been read or printed anywhere as submitted in its final form, and (4) the diction and simplicity of the presentation as given in the written copy must ever remain a large factor in its value. Papers should be submitted without identification marks, accompanied by a sealed envelope bearing on its outside the title of the paper, and containing within it the name and address of the author. These should be in the hands of the secretary, Dr. Charles B. Puestow, 30 North Michigan Avenue, Chicago, not later than March 15, 1948.

Conference and Broadcast on Alcoholism.—The first Industrial Conference on Alcoholism under the direction of Dr. Anton J. Carlson, emeritus professor of physiology, University of Chicago, and Dr. Andrew C. Ivy, vice president at the University of Illinois, will be held at the Morrison Hotel, Chicago, March 23. Among the speakers will be: Elvin M. Jellinek, Sc.D., Yale University, New Haven, Conn.; Dr. George H. Gehrmann, Wilmington, Del., medical director of E. I. Du Pont de Nemours & Company; Dr. John L. Norris of the Eastman Kodak Company, Rochester, N. Y.; Dr. David Slight, superintendent, Division of Veterans' Rehabilitation Centers, Chicago; Dr. Robert V. Seliger of Johns Hopkins University, Baltimore, and Dr. Robert E. Maupin of the Keeley Institute, Dwight, Ill. The Northwest Reviewing Stand radio program over WGN, Chicago, March 21, 10:30 a.m. central standard time, will broadcast a program devoted to the subject of alcoholism. Participants will be: Dr. Ivy; James H. Oughton Jr., director of the Keeley Institute; a member of the Chicago group of Alcoholics Anonymous, and Mrs. M. Colvin of the W. C. T. U.

INDIANA

Personals.—Dr. Neslen K. Forster, Hammond, president of the Indiana State Medical Association in 1945, has disposed of his practice and moved to LaJolla, Calif.

Discontinue Section Meetings.—The council of the state medical association has voted to discontinue section meetings at the 1948 annual session in Indianapolis, October 26-28. Each of the six sections will provide one speaker for the general scientific assembly.

Josiah Lilly Dies.—Josiah K. Lilly, chairman of the board of directors of Eli Lilly & Company, pharmaceutical manufacturers, died in Methodist Hospital, Indianapolis, February 8, aged 86. Mr. Lilly was president of the firm from 1898 until 1932 and had been a trustee of Purdue University, Lafayette, for ten years.

Society Celebrates Hundredth Birthday.—The Indianapolis Medical Society celebrated its hundredth anniversary February 24. Speakers included Lieut. Gov. Richard James; Mayor Al Feeney of Indianapolis; Dr. Cleon A. Nafe, president of the state medical association; Thomas A. Hendricks, Chicago, secretary, Council on Medical Service, American Medical Association, and, from Indianapolis, Dr. William N. Wishard Jr., Dr. Edgar F. Kiser and Mrs. Otto H. Bakemeier, president of the society's woman's auxiliary. Twenty-two past presidents were guests of honor. Dr. Bert E. Ellis, president of the society, presided. The society when organized Feb. 26, 1848 had twenty-one members; the membership today is nearly nine hundred.

IOWA

Field Secretary for State Society.—The Iowa State Medical Society has employed Mr. Donald L. Taylor to act as field secretary to relate the activities of the society more closely to the activities of individual members. He will visit meetings of county medical societies where desired, talk to individual physicians to learn their problems and questions and convey their inquiries and wishes to the central office and through it to the officers or committees involved. Mr. Taylor reported for duty February 1.

KANSAS

Public Relations in Finney County.—The Finney County Medical Society began a publicity program for the year by contracting with the *Garden City Telegram*, a newspaper, for advertising in the Saturday issue. Two members of the society prepare the copy. No schedule was set up for the year, so the copy may treat any medical subject that local conditions might indicate. Health hints, vaccination programs, chest x-ray surveys and general instruction on disease are among the subjects to be presented.

Tumor Diagnostic Clinics.—Since January 1947, when the Committee on Control of Cancer of the Kansas State Medical Society launched a program to establish tumor diagnostic clinics in all Kansas hospitals meeting the standardization requirements of the American College of Surgeons, eighteen of the state's twenty tumor clinics have been set up. The Kansas Division of the American Cancer Society, Inc., offered last year to pay each tumor clinic meeting the minimum standards $500 at the end of two months of successful operation. Since that time the cancer society has offered the clinics $500 at the beginning of the second year of operation.

MASSACHUSETTS

Grant for Training Nuclear Scientists.—A $250,000 grant for atomic research and training of nuclear scientists has been made to the Massachusetts Institute of Technology by the Texas Company. This work will be carried on primarily in the laboratory for nuclear science and engineering, which will coordinate its efforts with the departments of physics; chemistry; chemical, electrical and mechanical engineering; metallurgy, and biology for maximum interchange of information. One important phase of the program is the training of competent nuclear scientists and engineers by allowing them to conduct pioneer studies and thus gain invaluable experience.

Laboratories of Sanitary Science.—The William Thompson Sedgwick Laboratories of Sanitary Science have been added to the department of civil and sanitary engineering at the Massachusetts Institute of Technology, Boston. The new laboratories of sanitary engineering, sanitary chemistry and research, and sanitary bacteriology and research are designed to meet modern educational procedures in teaching sanitary engineering and to provide a thorough knowledge of the chemical and biochemical reactions which take place in the treatment of water, sewage and industrial wastes. William E. Stanley, professor of sanitary engineering, is in charge of the new laboratories.

MISSOURI

Vision Testing of School Children.—In a study sponsored by the National Society for the Prevention of Blindness, the U. S. Children's Bureau and the Missouri Division of Public Health, evaluation will be made of instruments used to test vision of school children. About 1,200 children in twenty elementary schools in St. Louis will be given six different types of tests by teachers, nurses and a technician. Following this all children will receive an eye examination by oculists at Washington University Eye Clinics. Cooperating in this study, in addition to the Washington University School of Medicine, is the St. Louis City Board of Education.

State Medical Meeting in St. Louis.—The Missouri State Medical Association will hold its ninetieth annual session at the Jefferson Hotel, St. Louis, March 14-17 under the presidency of Dr. Morris B. Simpson, Kansas City. Out of state speakers include:

William F. Mengert, Dallas, Texas, Overtreatment of Eclampsia.
Lewis S. Jordan, Granite Falls, Minn., Diagnosis of Tuberculosis in Rural Areas.
Charles G. Johnston, Detroit, Signs and Symptoms of the Acute Abdomen.
Bayard T. Horton, Rochester, Minn., Headache.
Thomas E. Smith, Dallas, Texas, Common Proctologic Conditions.
Henry T. Ricketts, Chicago, Treatment of Diabetes.
Charles H. Johnston, Des Moines, Iowa, Supportive Procedures.

The Tuesday afternoon program will be taken up with a symposium on pediatrics. At the past presidents' banquet at 7 p.m. March 15, Dr. Edward L. Bortz, Philadelphia, President of the American Medical Association, will speak on "Medicine's New Frontiers." The dinner for presidents and secretaries of county medical societies will be Sunday at 6 p.m.

MINNESOTA

Dr. Balfour Honored.—Dr. Donald C. Balfour, director emeritus of the Mayo Foundation, Rochester, was awarded a Certificate of Merit from the President of the United States at a ceremony in Balfour Hall, Mayo Foundation House, Rochester, February 5. Rear Admiral F. L. Conklin, medical officer of the Ninth Naval District with headquarters at Great Lakes, Illinois, made the presentation on behalf of the President. The Certificate, signed by President Truman and bearing the presidential seal, reads as follows: ". . . The President of the United States awards this Certificate of Merit to Dr. Donald C. Balfour for outstanding fidelity and meritorious conduct in aid of the war effort against the common enemies of the United States and its Allies in World War II . . ."

NEBRASKA

University Opens Student Health Center.—The University of Nebraska opened its new Student Health Center February 2. The center is housed in a two story, war surplus officer's barracks, which has been remodeled into a temporary hospital of twenty-six beds and is staffed with eight full time nurses, three part time nurses, a part time dietitian, two cooks, one x-ray technician, one laboratory technician and two orderlies. Eight Lincoln physicians are serving part time and seven are on a consulting staff. Dr. Sam I. Fuenning is the director.

NEW YORK

Mr. O'Connor Honored.—Basil O'Connor, president of the American Red Cross, has been honored by the British government as an Associate Knight of the Order of St. John of Jerusalem for "humanitarian work of great proportions." The Order originated in the eleventh century to provide hospital care for Crusaders reaching Jerusalem and later spread throughout Europe. The English branch is principally concerned with hospital and ambulance service.

Public Health Fellowships.—Dr. Herman E. Hilleboe, New York state health commissioner, announces the availability of fellowships for young physicians interested in entering public health as a career. The fellowships are for two years or less, depending on the qualifications of the applicant, and carry with them a stipend of $3,600 per year. In addition, necessary travel and other expenses are paid as well as tuition at a school of public health. Information may be obtained by writing to Dr. Franklyn B. Amos, New York State Department of Health, Governor Alfred E. Smith State Office Building, Albany 1, New York.

Rochester Academy Awards.—Two awards open to physicians and nurses of the eleven counties of the Rochester area have been added to those made each year by the Rochester Academy of Medicine. Certificates and $100 will be given to a physician for a thesis contributing to knowledge of medical practice as related to hospitals and to a registered nurse for a thesis contributing to the knowledge of nursing. The awards will be made by the academy at its annual meeting May 3. Papers should be submitted to the Awards Committee, Academy of Medicine, Rochester, N. Y., before April 1.

New York City

Society News.—At the February meeting of the local chapter of the International Spanish Speaking Association of Physicians, Incorporated, at the Waldorf-Astoria Hotel, a symposium was presented on arthritis.

Dr. Lull to Address Kings County Medical Society.—Dr. George F. Lull, Chicago, Secretary and General Manager of the American Medical Association, will speak March 16 at a meeting of the Kings County Medical Society, Brooklyn, on "Current American Medical Association Activities."

Clinic to Serve All Age Groups.—The Kate Depew Strang Prevention Clinic in Memorial Hospital has made its services available to men, women and children of all ages. The first examination for teen-agers was held February 6, and this group will be served each succeeding Friday. A year ago the clinic inaugurated special examinations for children from birth to 14 years of age.

Industrial Psychiatric Fellowship.—A pioneer program to train psychiatrists for the industrial relations and labor field will be inaugurated at Cornell University with an industrial psychiatry fellowship offered in the School of Industrial and

Labor Relations. The Carnegie Corporation has made a supporting grant. The fellowship will be awarded to a physician with experience in psychiatry and will provide two years of training at the school. In addition to classroom study in basic industrial and labor relations courses, the fellow will receive training in human relations work in a plant, labor union or government office.

Health Bulletin on Cancer Control.—Social and public health workers throughout the country will receive copies of a health bulletin for industry prepared by the Brooklyn Cancer Committee and distributed by the National Publicity Council for Health and Welfare Services. The bulletin issued recently in cooperation with the Brooklyn Industrial Health Committee was chosen by the council for inclusion in its publicity packets. The bulletin was a feature of the regular service to industry introduced fifteen months ago by the Brooklyn Cancer Committee. Each month a health pinup goes to five thousand industrial firms in Brooklyn for placement on factory and office walls to inform workers about cancer control.

Postgraduate Lectures.—The Medical Society of the State of New York in cooperation with the New York State Department of Health has arranged the following graduate lectures. The St. Lawrence County Medical Society will hear Dr. Wardner D. Ayer, Syracuse, speak on "Neurology in General Practice" March 11 at 12: 30 p.m. at Potsdam. He will deliver the same lecture to members of the Jefferson County Medical Society at 8 p.m. at Watertown. The programs arranged for the Madison County Medical Society will be given Thursday evenings at 8: 30 at the Hotel Oneida, Oneida.

March 18, Dr. Walter F. Bugden, Syracuse, Diagnosis and Treatment of Surgical Lesions of the Esophagus.
March 25, Dr. Robert O. Gregg, Syracuse, Surgery of the Stomach.
April 1, Dr. Albert D. Kaiser, Rochester, N. Y.; Rheumatism in Childhood.

A symposium on rheumatic fever has been arranged for the Oneida County Medical Society at the Hotel Utica, April 13 at 8 p.m. Dr. T. Duckette Jones, Boston, will speak on "Diagnosis of Rheumatic Fever"; Dr. Leo M. Taran, Brooklyn, "Hospital and Convalescent Care of the Rheumatic Fever Patient," and Dr. J. G. Fred Hiss, Syracuse, "Community Programs." On April 6 the Schenectady County Medical Society will hear Dr. George N. Papanicolaou, New York, speak on "Use of Cell Smears in the Early Diagnosis of Cancer," at the Ellis Hospital, Schenectady, 8:30 p.m.

OHIO

State Medical Meeting at Cincinnati.—The annual meeting of the Ohio State Medical Association will be held at the Netherland Plaza and Hotel Gibson, Cincinnati, March 30-April 1, under the presidency of Dr. Ralph L. Rutledge, Alliance. Guest speakers at the general sessions on March 30 and 31 at 3:15 p.m. will be:

Alan R. Moritz, Boston, Investigation of Deaths in the Interests of Public Safety.
Dallas B. Phemister, Chicago, Treatment of Selected Cases of Bone Sarcoma by Resection and Bone Transplantation.
F. Bayard Carter, Durham, N. C., Conservatism in Surgery of the Uterus and the Ovaries.
Merrill C. Sosman, Boston, Pitfalls in Roentgen Examination of the Gastrointestinal Tract.
Harold G. Wolff, New York, Headache Mechanisms.

One of the features of the meeting will be the series of instructional courses to be given daily from 1:30 to 3 p.m. at the Netherland Plaza. Six different courses each day of the meeting will be conducted as panel discussions and will provide informal instruction on clinical problems in everyday practice. Admission will be only by cards, which may be obtained in advance on application to the Columbus office, Ohio State Medical Association. There will be no charge; attendance will be limited to one hundred persons or fewer. At the annual banquet March 31, the program will be 100 per cent entertainment. Sectional meetings are scheduled from 9 a.m. to noon each day on medicine; anesthesiology; obstetrics and gynecology; general practice; public health and preventive medicine; eye, ear, nose and throat; surgery; nervous and mental diseases, and pediatrics.

Annual meetings of the Ohio State Radiological Society and the Ohio Chapter, American College of Chest Physicians will be held March 31.

PENNSYLVANIA

Meeting of Allergy Society.—The Central Pennsylvania Allergy Society will meet at the Yorkshire Hotel, York, April 1. The subjects include treatment of bronchial asthma, cytology of nasal secretions with special reference to allergic diseases, headache from the allergic point of view and the role of antihistaminic drugs.

Pittsburgh

Conference on Mental Health.—The Western State Psychiatric Institute will hold its third annual Coordinating Conference at the institute in Pittsburgh April 1, with research in mental health as the conference's theme. Among those on the program are: Dr. Paul I. Yakovlev, Yale University School of Medicine, New Haven, and the state hospital, Middletown, Conn.; Dr. Erich Lindemann, Massachusetts General Hospital and Harvard University School of Medicine, Boston; Dr. Lothar B. Kalinowsky, New York Psychiatric Institute and Hospital and associate research professor at Columbia University, New York; Dean Ruth Kuehn of the School of Nursing, University of Pittsburgh; Carney Landis, Ph.D., principal research psychologist of the New York State Psychiatric Institute and Hospital, and Helen Witmer of the Smith College School of Social Work. At the dinner meeting Dr. William Menninger, Topeka, Kan., will speak on "Research in Mental Health in the National Perspective." All professionally interested persons in Pennsylvania and vicinity are invited.

SOUTH CAROLINA

Personal. — Dr. John M. Preston, Columbia, has been appointed director of the state board of health, division of tuberculosis control, succeeding Dr. Franklin L. Geiger, resigned.

State Association Publishes News Letter.—In November the first South Carolina Medical Association *News Letter* was mailed to all members of the association. Through the *News Letter* information regarding current activities and news relating to the profession and its welfare can be turned over to the members of the association more rapidly than through the pages of the state journal. The association has also changed the content and concept of the quarterly Bulletin with its December issue by changing the name of the publication to *Auxiliary Bulletin*, since it has become the joint enterprise of the association and the Woman's Auxiliary.

VIRGINIA

Personal.—Dr. Jacques P. Gray, dean of the School of Medicine of the Medical College of Virginia, Richmond, 1942-1947, has joined the staff of Parke Davis & Company as medical consultant to the sales promotion division.

New Department of Anesthesiology.—A new department of anesthesiology has been opened at the Medical College of Virginia, Richmond, to offer training to physicians who desire to specialize in anesthesiology. Dr. William E. Pembleton, Hartford, Conn., has been named by president William T. Sanger to serve as director of the new department.

WEST VIRGINIA

License Revoked.—The license of Dr. Elmer Groves Kesler, Williamsburg, to practice medicine in West Virginia was revoked January 12 by the Public Health Council at a meeting in Charleston, on the grounds of "habitual use of narcotic drugs."

Annual Cancer Meeting.—The annual meeting of the West Virginia Cancer Society will be held in Charleston March 19, and at the annual dinner that evening Dr. Charles S. Cameron, New York, medical director of the American Cancer Society, Inc., will be the speaker. At the meeting of the board of directors and the state executive committee, officers for the new year will be elected, including a new secretary of the executive committee to succeed Dr. Paul R. Gerhardt, who is now director of the state bureau of cancer control, Albany, N. Y. Work shop meetings will be held the morning of March 20. Participation in the meeting is limited to those who contributed as much as $5 during the past year to funds for cancer control.

Conference of Secretaries.—The annual Secretaries Conference, discontinued during World War II, is scheduled for the Daniel Boone Hotel at Charleston March 14. Local secretaries, presidents of component societies and officers and members of the council will be present. The meeting will get under way at 10 a.m. and will adjourn at 4 p.m. The following program has been arranged:

L. Fernald Foster, secretary, Michigan State Medical Society, Bay City, Mich., Public Relations.
Wingate M. Johnson, Winston-Salem, N. C., Postgraduate Education for the General Practitioner.
Theodore Wiprud, executive director and secretary of the Medical Society of the District of Columbia, Washington, D. C., Planning Medical Society Programs.
Newman H. Dyer, state health commissioner, Charleston, Public Health Administration.

A roundtable discussion will follow the address of each speaker; in addition, there will be a roundtable discussion of problems of administration that concern local societies and the headquarters offices of the state medical association.

GENERAL

Societies for Experimental Biology.—The Federation of American Societies for Experimental Biology will meet in Atlantic City, N. J., March 15-19. The federation is composed of the American Physiological Society, American Society of Biological Chemists, American Society for Pharmacology and Experimental Therapeutics, American Society for Experimental Pathology, American Institute of Nutrition and American Association of Immunologists. The scientific sessions, ninety-six in number, will be held in the Atlantic City Convention Hall. Headquarters will be at Chalfonte-Haddon Hall.

Conference of Society for the Study of Sterility.—The American Society for the Study of Sterility, Eastern Section, will hold its second annual conference on the Clinical Aspects of Fertilization and Impregnation in Human Reproduction at the Hotel Pierre, New York, March 13 beginning at 9 a.m. The conference will consist of four panel discussions, two of which will be devoted to the male and two to the female. Moderators will be John MacLeod, Ph.D., New York; Dr. Oswald S. Lowsley, New York; Carl G. Hartman, Ph.D., Urbana, Ill., and Dr. Robert L. Dickinson, New York.

Banquet to Honor General Hawley.—To mark the beginning of its sixth year of service, the National Council on Rehabilitation will honor Gen. Paul R. Hawley, recently retired medical director of the Veterans Administration, at a banquet at the Waldorf-Astoria Hotel, New York, on March 19. Charles P. Taft, chairman, committee of sponsors, will preside. Dr. Henry H. Keesler, president of the council, in commenting on the reason for choosing General Hawley for the honor, said: "General Hawley's reorganization of medical services, on which the physical restoration of the disabled veteran is based, constitutes a unique contribution to the field of rehabilitation."

Congress on Reproduction.—All papers to be presented before the first International Congress of Physiology and Pathology of Animal Reproduction and Artificial Insemination should be sent to the secretary general of the congress, 17 Via Fratelli Bronzetti, Milan, Italy, before March 31, 1948. Papers must be followed by a summary not exceeding one hundred words. The congress will be composed of the following sections: (1) biologic problems of animal reproduction; (2) breeding problems of animal reproduction; (3) pathologic problems; (4) artificial insemination of animals, and (5) legislation and organization problems of artificial insemination and of animal reproduction.

Resolution Concerning Pooled Plasma.—The following statement was approved by the Committee on Medicine, Division of Medical Sciences, National Research Council, February 9, as a modification of the resolution submitted by the Subcommittee on Liver Diseases: "Since numerous cases of hepatitis, some fatal, have resulted from transmission of hepatitis virus in human *pooled* plasma, the Committee on Medicine strongly recommends that dried or liquid *pooled* plasma not be used until a satisfactory means of sterilizing such products is found. Exceptions may be made in patients with severe burns or in mass emergencies where sufficient whole blood is not available. It is further recommended that persons known to have had jaundice at any time should not be used for blood donors."

Annual Meeting of Allergists.—The American College of Allergists will hold its fourth annual session at the Hotel Pennsylvania, New York, March 12-14, under the presidency of Dr. Hal M. Davison, Atlanta, Ga. The longer papers to be given at the scientific sessions include:

March 12, Alexander S. Wiener, Brooklyn, Rh Factor in Immunologic Reactions.
Richard H. Overholt, Brookline, Mass., Common Surgical Problems Which Often Masquerade as Asthma.
March 13, Philip D. McMaster, New York, Anaphylactic Shock in Mice Induced by a Traceable Colored Antigen.
Otto Loewi, New York, Transmission of Nervous Impulse.
March 14, Edward C. Rosenow, Cincinnati, and Bayard T. Horton, Rochester, Minn., Bacteriologic Studies in Multiple Sclerosis.
Henry P. Wagener and Dr. Horton, Rochester, Minn., Retrobulbar Neuritis: Treatment with Histamine.

A panel discussion on "Otolaryngologic Phases of Allergy" will be held Sunday afternoon. The informal banquet will begin at 7;30 p. m. A postconvention pleasure trip free of charge has been arranged.

Poliomyelitis Reports for 1948.—The 1948 edition of "Facts and Figures About Infantile Paralysis," a publication of the National Foundation for Infantile Paralysis, is now available to physicians and public health workers. Statistics on the disease, revised yearly, are gathered from the United States Public Health Service, state health departments and various other sources. Statistics furnish information on age and sex distribution, case rates, crippling conditions and mortality. For the first time this publication includes data on the disease in foreign countries. Copies of the booklet (number 59) may be secured free of charge by writing Education Service, the National Foundation for Infantile Paralysis, 120 Broadway, New York 5.

International Leprosy Congress.—The fifth International Leprosy Congress, sponsored by the government of the Republic of Cuba and the International Leprosy Association, will meet at Valdés Rodríguez School in Havana, Cuba, April 3-11, under the presidency of Dr. Herbert W. Wade, Culion, P. I. The National Organizing Committee has extended and shall extend special invitations to universities, official bodies, dermatologic or leprologic associations or persons interested in attending. Application for invitations to attend should be made to the secretary of the committee, Dr. Ismael Ferrer, Calzada de Columbia y 8va Marianao, Cuba.

The congress will take up the determination of the value of the new sulfone drugs in the treatment of leprosy and will discuss the approval or modification of the new South American classification of leprosy. The scientific work will be handled by five committees: therapeutics, classification, epidemiology, research and social assistance. Official languages of the congress will be Spanish, French, English and Portuguese.

Birth Rate at Record High.—Although the monthly birth rate in the United States has declined from the postwar peak of 29.5 per thousand population in December 1946, the birth rate for the entire year of 1947 established a new postwar peak. According to the Feb. 16, 1948 *Monthly Vital Statistics Bulletin* (National Office of Vital Statistics, Federal Security Agency) the provisional birth rate for 1947 was 25.9 per thousand population, about one-ninth higher than the corresponding rate of 23.3 for 1946. The monthly rates for the first eight months of 1947, although below the December 1946 peak, were so much higher than the rates for the corresponding months in 1946 that the annual rate for 1947 is actually greater. It is the highest annual rate recorded since the birth registration area was established in 1915. The number of registered live births for 1947 was about 3,720,000 as compared with the final figure of 3,288,672 for 1946. These birth rates have not been adjusted to the number of women at the child-bearing ages; they show merely the number of births per thousand population, which includes males and females of all ages.

INDIA

Smallpox in Calcutta.—The *New York Times* reported February 12 that 406 persons died from smallpox in Calcutta during the week that ended February 7. Latest mortality figures are thirteen times higher than those for the week ending December 6, when smallpox was declared epidemic. Almost 200,000 persons were vaccinated the week of February 2.

Marriages

Marshall de Graffenried Ruffin, Washington, D. C., to Miss Laura Monteen Brannen of Fort Lauderdale, Fla., Nov. 22, 1947.

Albert Ira Robbins, New York City, to Miss Shirley Constance Berlin of Brookline, Mass., Dec. 21, 1947.

Charles C. Wannamaker, Orangeburg, S. C., to Miss Wilna Betty Poe of Greenville, Oct. 25, 1947.

Stuart S. Bederman, Chicago, to Miss Miriam Jacobs of Elgin, Ill., in Honolulu, Hawaii, January 22.

William Edward Sandrock to Dr. Rachel Shipps Rice, both of Rochester, N. Y., January 17.

Edward Gipstein to Miss Edith Joyce Glassenberg, both of New London, Conn., Oct. 26, 1947.

Robert S. Monk, Boise, Idaho, to Miss Nan Helen Brockway of Waukesha, Wis., Aug. 16, 1947.

Avrohm Jacobson to Miss Shirley Applebaum, both of Washington, D. C., January 3.

Nard Lair, Dallas, Texas, to Miss Clara Lee Hethcoat at Sulphur Springs, February 14.

Edward Lloyd Seretan to Miss Enid Sheila Stollerman, both of New York, Aug. 31, 1947.

William Carl Beck, Sayre, Pa., to Miss Jane Murray of Waverly, Dec. 13, 1947.

Michael Ladd, New York, to Miss Anne Pratt of Bridgewater, Conn., January 2.

Deaths

William Edward Bannen ⊕ La Crosse, Wis.; born in Boscobel, Wis., in 1881; Northwestern University Medical School, Chicago, 1908; specialist certified by the American Board of Urology, Inc.; member of the House of Delegates of the American Medical Association in 1916 and from 1929 to 1936; fellow of the American College of Surgeons; past president of the Wisconsin Urological Society; medical examiner on the Selective Service Board during World War I; recently retired from the Wisconsin National Guard with the rank of lieutenant colonel; in 1934 awarded the Silver Beaver in recognition of his services in the Boy Scouts; member of the city and county boards of health; chief preceptor at the University of Wisconsin in Madison; affiliated with St. Francis Hospital; died in Rochester, Minn., Nov. 20, 1947, aged 67, of cirrhosis of the liver.

Arthur Wells Elting ⊕ Albany, N. Y.; born in South Cairo, N. Y., Oct. 16, 1872; Johns Hopkins University School of Medicine, Baltimore, 1898; retired July 1, 1937 as professor of surgery at the Albany Medical College; member of the founders group of the American Board of Surgery; past president of the American Surgical Association; member of the Society of Clinical Surgery; fellow of the American College of Surgeons; served in France during World War I; for many years chief surgeon of the Delaware and Hudson Railroad Corporation; senior vice president of the Albany Savings Bank; served on the staff of the Albany Hospital; died January 2, aged 75, of multiple myeloma.

Benjamin Peter Farrell, New York; Long Island College Hospital, Brooklyn, 1904; emeritus professor of orthopedic surgery at Columbia University College of Physicians and Surgeons; specialist certified by the American Board of Orthopædic Surgery, Inc.; member and formerly vice president of the American Orthopedic Association; member of the American Medical Association; fellow of the American College of Surgeons; affiliated with the Englewood (N. J.) Hospital and the Presbyterian Hospital; served as surgeon in chief of the New York Orthopedic dispensary and Hospital; died in Stamford, Conn., Dec. 27, 1947, aged 77, of mesenteric thrombosis.

Frank Matthew Conlin ⊕ Omaha; born in 1883; Rush Medical College, Chicago, 1907; specialist certified by the American Board of Internal Medicine; professor of clinical medicine, University of Nebraska College of Medicine; past president of the Omaha-Douglas Counties Medical Society; member of the state board of medical examiners and board of directors of the American Diabetic Association; affiliated with the Nebraska Methodist Hospital and Deaconess Home, Bishop Clarkson Memorial, University of Nebraska, St. Catherine's and the Douglas County hospitals; died Dec. 15, 1947, aged 64, of acute coronary thrombosis.

William Hadley Richardson ⊕ Colonel, U. S. Army, retired, Harrisburg, Pa.; born in Ohio, Sept. 6, 1876; Western Reserve University Medical Department, Cleveland, 1901; fellow of the American College of Surgeons; served as lieutenant (jg) Ohio Naval Militia from 1903 to 1905; commissioned as a first lieutenant in the medical corps of the U. S. Army in June 1907; served during World War I; retired as a colonel April 30, 1940; past president of the Medical Association of the Isthmian Canal Zone; served with the state board of health as chief of the division of sanatoriums until 1944; died January 15, aged 71, of coronary thrombosis.

Arthur Smith Chittenden ⊕ Endicott, N. Y.; born 1872; Johns Hopkins University School of Medicine, Baltimore, 1900; fellow of the American College of Surgeons; member of the House of Delegates of the American Medical Association in 1926; served as vice president of the Medical Society of the State of New York; consulting surgeon at Charles S. Wilson Hospital in Johnson City and Ideal Hospital; formerly attending surgeon at Binghamton State Hospital; consultant to the Binghamton (N. Y.) City Hospital, where he died January 6, aged 75, of arteriosclerotic heart disease and bronchiectasis.

William Tarun ⊕ Baltimore; born in 1870; University of Maryland School of Medicine, Baltimore, 1900; formerly on the faculty of his alma mater; member of the American Academy of Ophthalmology and Otolaryngology, Association for Research in Ophthalmology, and American Ophthalmological Society; fellow of the American College of Surgeons; chief of clinic, University Hospital; ophthalmologist and otologist, James Lawrence Kernan Hospital and Industrial School for Crippled Children in Baltimore and the Rosewood State Training School at Owings Mills; died Nov. 21, 1947, aged 77, of carcinoma of the lung.

Oscar Arthur Axelson, Youngstown, Ohio; University of Michigan Medical School, Ann Arbor, 1930; member of the American Medical Association; awarded the Bronze Star for meritorious service and five campaign stars during World War II; died Dec. 6, 1947, aged 44, of coronary thrombosis.

Thomas A. Baltz, Pomona, Mo.; St. Louis College of Physicians and Surgeons, 1896; died in St. John's Hospital, Springfield, Dec. 8, 1947, aged 74, of carcinoma of the lung.

William Hamlin Banks ⊕ Mifflintown, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1889; charter member and past president of the Juanita County Medical Society; medical examiner for the county draft board during World War I; for many years county medical director and surgeon for the Pennsylvania Railroad; died Dec. 24, 1947, aged 85, of mesenteric thrombosis.

George William Benitz, Wathena, Kan.; Baylor University College of Medicine, Dallas, 1922; member of the American Medical Association; county coroner and health officer; died Nov. 15, 1947, aged 68, of heart disease.

Martin A. Blanton, Mosheim, Tenn. (licensed in Tennessee in 1906); member of the American Medical Association; died Dec. 17, 1947, aged 74, of coronary occlusion.

Albert Liddell Callery, Port Huron, Mich.; Trinity Medical College, Toronto, Canada, 1897; past president and secretary of St. Clair County Medical Society; member of the American Medical Association; assistant director of St. Clair County Department of Health; city health officer; affiliated with Port Huron Hospital; died Dec. 3, 1947, aged 62, of coronary occlusion.

Francis Albion Carmelia ⊕ Medical Director, U. S. Public Health Service, retired, Norristown, Pa.; Jefferson Medical College of Philadelphia, 1911; entered the U. S. Public Health Service on March 15, 1913; served as assistant surgeon general; died in Montgomery Hospital, Dec. 15, 1947, aged 58, of heart disease.

Horace H. Darlington ⊕ Concordville, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1879; died Dec. 16, 1947, aged 90, of senility.

Albert Benson Deering ⊕ Boone, Iowa; Northwestern University Medical School, Chicago, 1898; fellow of the American College of Surgeons; died Dec. 12, 1947, aged 73, of coronary sclerosis.

Daniel Meeker Denman, Cincinnati; Cincinnati College of Medicine and Surgery, 1881; member of the American Medical Association; for many years probate court alienist; died Dec. 26, 1947, aged 90, of coronary occlusion.

William E. Drisdale, Santa Fe, N. Mex.; Rush Medical College, Chicago, 1893; died recently, aged 80.

William Edgar Fallis, Louisville, Ky.; Hospital College of Medicine, Louisville, 1907; member of the American Medical Association; formerly on the faculty of the University of Louisville School of Medicine; for many years on the staff of the Deaconess Hospital, where he died Dec. 11, 1947, aged 61, of coronary occlusion.

Harry Lawrence Farmer ⊕ Cleveland; Baylor University College of Medicine, Dallas, Texas, 1918; specialist certified by the American Board of Radiology, Inc.; member of the American Roentgen Ray Society, [illegible] of North America and the American [illegible] served on the staff of Huron Road Hos[illegible] Ohio; died Dec. 6, 1947, aged 52, of coronary thrombosis.

James William Farrior, Warsaw, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1912; member of the American Medical Association; served during World War I; died Dec. 16, 1947, aged 65, of cerebral thrombosis.

Mark Lance Fleming, Orlando, Fla.; Cornell University Medical College, New York, 1901; general medical superintendent of the department of hospitals in New York City from 1930 to 1936, when he retired; at one time superintendent of the Bellevue Hospital in New York; died Dec. 7, 1947, aged 67, of coronary occlusion.

William Alexander Jack ⊕ Washington, D. C.; Howard University College of Medicine, Washington, 1896; served on the faculty of his alma mater and on the staff of the Freedman's Hospital; died Dec. 31, 1947, aged 74, of chronic cardiorenal vascular disease.

Henry Lincoln Johnson, Brunswick, Maine; Columbia University College of Physicians and Surgeons, New York, 1912; served as college physician of Bowdoin College; died Dec. 3, 1947, aged 61, of coronary thrombosis.

Raymond Child Jones, Ashby, Mass.; University of Vermont College of Medicine, Burlington, 1902; member of the American Medical Association; died at his winter home in Mount Dora, Fla., Dec. 2, 1947, aged 66, of coronary thrombosis.

Harry S. King, Grosse Ile, Mich.; McGill University Faculty of Medicine, Montreal, Canada, 1892; formerly adviser at the Juvenile Court in Detroit; died in the Harper Hospital, Detroit, in December 1947, aged 76, of renal insufficiency following an operation for benign hypertrophy of the prostate.

George N. Lake, Pleasant Lake, Ind.; Fort Wayne College of Medicine, 1902; died Nov. 24, 1947, aged 71, of coronary occlusion.

Charles Edward Lane ⊕ Poughkeepsie, N. Y.; New York Homeopathic Medical College, 1883; past president of the city council; affiliated with St. Francis Hospital and the Vassar Brothers Hospital, where he died Dec. 27, 1947, aged 92, of arteriosclerotic heart disease.

Clifford McCalmont Lane ⊕ Pittsburgh; Johns Hopkins University School of Medicine, Baltimore, 1918; specialist certified by the American Board of Urology, Inc.; member of the American Urological Association; fellow of the American College of Surgeons; served in France during World War I; for many years on the staff of the Allegheny General Hospital, where he died Nov. 27, 1947, aged 56, of coronary occlusion.

Sebastian Lang ⊕ New York; Eberhard-Karls-Universität Medizinische Fakultät, Tübingen, Württemberg, Germany, 1921; affiliated with Lenox Hill Hospital and St. Francis Hospital, where he died Dec. 7, 1947, aged 55, of carcinoma of the transverse colon.

Luther Middleton Latham, Coral Gables, Fla.; Medical College of Alabama, Mobile, 1892; died Oct. 31, 1947, aged 77.

Morris Julius Lavine ⊕ Syracuse, N. Y.; Syracuse University College of Medicine, 1919; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of America; on the staff of the Onondaga County Hospital, Onondaga; died Nov. 8, 1947, aged 50, of carcinoma of the rectum.

Walter John Leaman ⊕ Leaman Place, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; died Nov. 11, 1947, aged 73.

David Barnard Lepper, Bluefield, W. Va.; Harvard Medical School, Boston, 1902; member of the American Medical Association; for many years county health officer; captain in the medical corps of the U. S. Army during World War I; died Dec. 8, 1947, aged 72, of aplastic anemia.

James Webster Loughlin ⊕ Newcastle, Maine; Medical School of Maine, Portland, 1900; for many years health officer for third district; served during World War I; died Dec. 22, 1947, aged 76, of aplastic anemia and hypertrophy of prostate.

Walter James Lowrie ⊕ North Braddock, Pa.; Medico-Chirurgical College of Philadelphia, 1908; served on the staff of the Braddock (Pa.) General Hospital; a director of the First National Bank; died Nov. 15, 1947, aged 64, of coronary occlusion.

Marcus Henry Lynch, Manning, Iowa; Drake University Medical Department, Des Moines, 1911; at one time employed by the government as examining physician for the Civilian Conservation Corps camps in Arkansas; served as physician for the Rock Island Railroad; died Nov. 25, 1947, aged 65, of heart disease.

Tilden T. Manzer, Seattle; University of Louisville (Ky.) School of Medicine, 1913; member of the American Medical Association; fellow of the American College of Surgeons; member of the staffs of the Swedish and Kings County hospitals; died Nov. 24, 1947, aged 58.

Thurman Francis McAllister, Coshocton, Ohio; Ohio State University College of Medicine, 1934; member of the American Medical Association; past president of the Coshocton County Medical Society; served overseas during World War II; affiliated with the Coshocton Memorial Hospital; died Nov. 11, 1947, aged 38, of rheumatic endocarditis.

Edwin S. Miller, Scranton, Pa.; Maryland Medical College, Baltimore, 1900; died Nov. 26, 1947, aged 82.

Edward Wright Peet ⊕ Pomona, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 18[illegible]0; served during the Spanish-American War and World War I; an Affiliate Fellow of the American Medical Association; formerly member of the seventy-first regiment of the New York National Guard; at one time on the staff of Roosevelt Hospital in New York; died January 3, aged 85, of uremia.

William Robert Perkins ⊕ Washington, D. C.; Columbian University Medical Department, Washington, 1901; also a graduate in pharmacy; affiliated with the Doctors, Columbia, Emergency, Homeopathic, Sibley, George Washington, Garfield and Children's hospitals; died in Doctors Hospital Dec. 9, 1947, aged 71, of acute myocardial infarction.

William Jerdone Pettus ⊕ Senior Surgeon, U. S. Public Health Service, retired, Charleston, S. C.; Medical College of Virginia, Richmond, 1884; fellow of the American College of Surgeons; joined the U. S. Public Health Service as an assistant surgeon in 1886, serving later as an assistant surgeon general; died in Roper Hospital Dec. 28, 1947, aged 84, of cerebral thrombosis and arteriosclerosis.

William Stewart Philp ⊕ Pasadena, Calif.; McGill University Faculty of Medicine, Montreal, Canada, 1889; died Nov. 29, 1947, aged 81.

John Arnold Reese ⊕ Attleboro, Mass.; Tufts College Medical School, Boston, 1908; fellow of the American College of Surgeons; served during World War I; chief surgeon, Sturdy Memorial Hospital; died Dec. 10, 1947, aged 62, of coronary thrombosis.

Harold Irwin Reynolds, Athens, Ga.; Johns Hopkins University School of Medicine, Baltimore, 1912; member of the American Medical Association; fellow of the American College of Physicians; served during World War I; consulting physician to the University of Georgia; affiliated with St. Mary's Hospital and Athens General Hospital, where he died recently, aged 60, of chronic lymphatic leukemia.

Joseph Harrison Robinson Jr., Hamlet, N. C.; Howard University College of Medicine, Washington, D. C., 1944; served an internship at Lincoln Hospital in Durham, N. C.; died Nov. 24, 1947, aged 27.

Richard William Robinson ⊕ Laconia, N. H.; Yale University Medical School, New Haven, 19[illegible]0; past president of the New Hampshire Medical Society; served during World War I; affiliated with the Laconia Hospital; died in Boston Nov. 17, 1947, aged 54, of coronary heart disease.

Richard Frederick Rowse, Beaver, Pa.; University of Pittsburgh School of Medicine, 1943; served an internship at the Western Pennsylvania Hospital and a residency at the Mercy Hospital in Pittsburgh; served during World War II; affiliated with Rochester (Pa.) General Hospital; died recently, aged 33, of an accidental gunshot wound.

Joseph A. Sinclitico, Lawrence, Mass.; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1901; died Nov. 30, 1947, aged 73.

Horace Adam Skidmore, West Mansfield, Ohio; Starling Medical College, Columbus, 1902; also a graduate in pharmacy; died Nov. 18, 1947, aged 73, of a hip fracture suffered in a fall.

Alva Ellsworth Stonecipher, Pasadena, Calif.; Western Pennsylvania Medical College, Pittsburgh, 1888; died Dec. 9, 1947, aged 84, of carcinoma of the sigmoid.

Elijah Van Camp ⊕ Battle Creek, Mich.; Northwestern University Medical School, Chicago, 1903; affiliated with Leila and Community hospitals; served during World War I; life member of Michigan State Medical Society; died Dec. 5, 1947, aged 72, of coronary thrombosis.

George Bickford Van Doren ⊕ Watertown, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1900; for many years city health officer; served during World War I; affiliated with the House of the Good Samaritan and Mercy Hospital; died Nov. 28, 1947, aged 74, of coronary thrombosis.

Bernhard Henry Vollertsen, Carneys Point, N. J.; University of Michigan Homeopathic Medical School, Ann Arbor, 1918; died in Presbyterian Hospital, New York, Nov. 11, 1947, aged 55.

Walter Alva Weed ⊕ Orlando, Fla.; Maryland Medical College, Baltimore, 1905; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America and the American College of Radiology; served as secretary of the Florida Radiological Society; an officer during World War I; affiliated with Orange General Hospital, where he died Dec. 2, 1947, aged 64, of carcinoma of the right cheek.

Robert Davis Wiswall ⊕ Vancouver, Wash.; University of Oregon Medical School, Portland, 1897; died Nov. 10, 1947, aged 77.

Elizabeth Raymond Withrow, Corsicana, Texas; University of Arkansas School of Medicine, Little Rock, 1939; member of the American Medical Association; died Nov. 30, 1947, aged 39, of burns received when her home caught fire.

Foreign Letters

AUSTRALIA

(From Our Regular Correspondent)

Jan. 21, 1948.

National Medical Service

There is at present a period of stalemate in the government plans for a national medical service in Australia. The British Medical Association is standing firm on eight principles: (1) opposition to a full time salaried service; (2) freedom from control in professional matters; (3) freedom for the patient to choose his own physician; (4) freedom of the physician to practice where and in the way he thinks best; (5) adequate medical representation on controlling bodies; (6) freedom from political interference; (7) a fee-for-service form of payment, and (8) a stable guaranteed fund to finance the service.

The government has made no definite statement on the principles which underly any proposed plan, but views expressed by the minister of health on various occasions indicate that: (1) private practice would be eliminated; (2) control and direction would be exercised over physicians in the service; (3) the government would not appoint nominees of the British Medical Association to the central controlling body, and (4) a fee-for-service method of payment is not favored. The chief bone of contention between the physicians and the government has to do with the method of payment for services. The minister for health, at the last discussion, agreed to hear arguments in favor of the fee-for-service method. The British Medical Association committees of all states of Australia, especially Western Australia, have been active in preparing a case for submission.

It is not expected that the government will take action to implement any national medical service in the near future. After many months of stormy sessions in parliament, a bill to nationalize the trading banks was passed late in 1947. Now the government has to face a legal challenge which will absorb its attention for the next few months. In the meantime plans for a national medical service are undergoing a partial eclipse. It is known that high officials of the commonwealth health department are continuing the preparation of plans, but this has been going on for ten years without much definite result. Two important factors are operating. First, there is no public demand for a national medical service. In general the people are reasonably satisfied with the present combination of private practice and public hospitals, even though all agree that there is scope for improvement. The lay press does not favor a national medical scheme, if only because further extension of nationalization may lead to application of the principle to its own sphere. Second, the labor government, which is driving for a national service, is losing political ground. Only two of the six states, Queensland and New South Wales, can now be regarded as strongholds of the labor movement. The other four states have either a nonlabor government or such a weak majority of the labor party members that they are politically impotent.

It is again proposed by the government that pharmaceutical benefits (free medicine) be introduced early this year. This announcement is not taken seriously, as similar statements have been made at intervals since the legislation was passed. Recently there have been no official conferences with chemists or physicians to attempt to solve the outstanding difficulties. The present medical attitude to "free medicine" is that the federal council of the British Medical Association in Australia could not advise members of the medical profession in Australia to use the government prescription forms and formulary. The association has taken legal opinion regarding the government's constitutional power (as extended by the referendum) in regard to the obligations of the medical profession. The legal opinion is that the services of medical practitioners cannot be compelled. The power under the constitution, as amended, is not a power to regulate medical services but only to legislate to provide such services without power to compel any person to render them.

Centenary of Royal Melbourne Hospital

On March 15, 1948 the Royal Melbourne Hospital will celebrate its centenary. As part of the plan to celebrate this historic occasion, the Committee on Management, in conjunction with the Medical Staff, has arranged for a scientific session to take place from March 1 to 10. Dr. William Evans, eminent London cardiologist, will lecture during the session. Through the courtesy of the Royal Australasian College of Surgeons, Sir Hugh Cairns, Nuffield professor of neurosurgery at Oxford University, will also lecture.

BERLIN

(From Our Regular Correspondent)

Jan. 19, 1948.

Discussions About Artificial Abortion

Article 218 of the German Criminal Code, enacted in 1871 and still in effect, makes abortion punishable. The law admits of no exception. In practice, however, the medical indication has been recognized for a long time.

In 1927 an important decision was rendered by the German Supreme Court at Leipzig, by which a state of emergency is recognized when, after a careful weighing of all medical circumstances, an abortion is performed in a case of "present danger" to the pregnant woman, which cannot be overcome by other means. "Present danger" is defined as a state of affairs which in the normal course of events will with certainty lead to danger of life or a serious impairment of health, unless preventive measures are taken. An abortion performed in such an emergency is not considered a violation of the law.

The war and the postwar period brought about not only an increased number of abortions but also gave a new impetus to discussions about the application of Article 218. These discussions are promoted by the following factors: the bad food and housing situation which has increased the demand for a social indication; the occurrence of many cases of rape; a checkered variety in the administration of justice brought about by the splitting up of Germany into four zones and of these four zones into individual provinces, and, finally, anticipated changes in legislation.

MEDICAL INDICATION

In the discussions there is no question about the generally recognized permissibility of interruptions of pregnancy on medical grounds. However, while one should expect under present conditions that physical impairment would be the main reason for permitting abortions, there is in fact an ever increasing percentage of psychiatric diagnoses advanced for that purpose. Professor Scheid, Hamburg, stresses that justified psychiatric indications are rare. This holds true even for most cases of psychosis, because they are not often aggravated by pregnancy. Only such cases of psychosis as occur for the first time during pregnancy, the puerperium or lactation may be considered an indication for terminating pregnancy. Cases of paralysis or epilepsy will seldom justify an abortion. Questionable is the justification of an interruption based on reactive depression, the psychiatric diagnosis most frequently advanced. Even suicidal tendencies in such cases call, according to the author, for treatment in an institution rather than abortion.

SOCIAL INDICATION

While most authors agree that medical indications may be modified by social circumstances, they draw a sharp dividing line between such indications and those on purely social grounds, for which the demand has increased with the poor food and housing situation. In contrast to the ideas prevailing in the western zones, the Central Administration of Public Health in the Soviet zone stated recently that, under the existing living conditions, the interruption of a pregnancy on social grounds is permissible. The need must be stated by a committee consisting of physicians and persons experienced in public welfare; the pregnancy must not be older than three months, and the woman must have been informed of the dangers involved. The chief of German administration of justice in that part of Baden which belongs to the French zone stated in December 1945 that no social or ethical indications can be recognized.

INDICATION OF RAPE

In July 1946 the minister of justice in Greater Hesse (American zone) issued a regulation providing that the interruption of a pregnancy is not punishable if performed by a licensed physician who, after a thorough examination of all circumstances, has come to the conviction that the pregnancy is the consequence of a criminal act. The previously mentioned chief of administration of justice in Baden (French zone) stated that no indication on the grounds of rape can be recognized. Several authors in the western zones, notably Spiegler (Frankfurt) emphasize the danger of recognizing such indication inasmuch as it is almost impossible to prove that a pregnancy is the consequence of rape when no other evidence is available than the statement of the woman herself. An important factor in weighing the evidence ought to be whether or not the incident was reported immediately after the alleged occurrence or only after the woman has become convinced that she is pregnant. In several cases in which interruption was declared permissible on the basis of the previously mentioned Hessian regulation, a more thorough interrogation and examination proved that, in view of the stage of pregnancy, the alleged rape could not have been its cause. Cases in which there was sufficient evidence to prove rape have not often resulted in pregnancy. Moreover, the number of rape cases has decreased sharply since the beginning of 1946. Sometimes such incidents have been advanced as a medical indication for interruption on psychiatric grounds. The difficulties in such decisions have been discussed previously.

EUGENIC INDICATION

A clearly eugenic indication for abortion is not accepted anywhere. Amazingly, even the Nazis did not make it legal. Spiegler stresses that even in the case of Huntington's chorea with its dominant gene the offspring will be ill only in 50 per cent of the cases if only one parent has the disease. In all other mental diseases the probability that the child will inherit it is less than 50 per cent if only one parent is ill. In schizophrenia only 53 per cent of the children acquire the disease if both parents are afflicted (quoted from Bumke). With one parent ill, the probability is not more than 10 per cent. The same holds true with other mental diseases. Therefore it appears that of all combinations only Huntington's chorea in both parents would provide a scientifically valid reason for interruption of pregnancy.

Acute Dilatation of the Intestine Following Faulty Nutrition

Brandt, of Detmold, describes 7 cases of acute dilatation of the intestine following faulty nutrition which were seen in the second half of 1946 in a hospital which formerly averaged 1 case of megacolon per year. Early in 1947 he treated 3 more patients with a similar condition. All patients had eaten large amounts of calorically poor, fermenting vegetable food immediately preceding their illness. The attack started acutely and developed into a complete ileus within twenty-four hours. The most characteristic sign in these cases is an enormous distention of the abdomen, comparable only to advanced ascites. If the general condition is not too bad, conservative treatment may be tried first, consisting of a high rectal tube, neostigmine and 80 per cent sodium chloride solution intravenously. If there is no success within one or two hours at the most, operation is imperative. The results are good if no torsion has set in—if it has, prognosis becomes bad. On opening the abdominal wall the enormously distended sigma, rarely the transverse colon, protrudes. If there is danger of bursting, the intestine must be punctured immediately. Otherwise, the largest available tube, preferably a stomach tube, is inserted rectally and pushed up high enough to permit the gas to escape. Necessary auxiliary manipulations on the intestine are generally easy enough. Success is usually immediate. As to the cause of the attack, the author assumes that a slight torsion or constipation leads to a certain stagnation, proximal to which fermentation develops rapidly. It is obvious that there must be a predisposition for such attacks, namely, a megasigma or megacolon transversum, but the patients had seldom had any prior intestinal troubles. The author is of opinion that this predisposing factor is also a result of the faulty carbohydrate-rich diet of the last years.

Medical Meetings

Psychiatrists and Neurologists.—On April 26 and 27, 1947 a meeting of the psychiatrists and neurologists of the British-occupied zone took place at Bremen. The seventy-three participants constituted themselves the Association of Psychiatrists and Neurologists of Northwestern Germany, with Kehrer (Münster), Pette (Hamburg) and Schneider (Gütersloh) as members of the board. A special committee was appointed to draft new legislation in the field of eugenics and to formulate a program for youth welfare and the treatment and care of war veterans who suffer from cerebral and neural injuries. The meeting dealt also with the problem of euthanasia and with the problems of legal responsibility of criminals, for the purpose of giving expert opinions before British and American Military Government Courts. A resolution was passed stressing that the formation of the association should not encroach on the activities of existing smaller associations in the same field and should not exclude or prejudge decisions of any future, nationwide association.

Gynecologists.—From Oct. 15 to 18, 1947, a scientific meeting of the gynecologists in the Soviet zone of occupation took place in Berlin. Several guests from the western zones were present. Jung (Berlin) delivered an interesting lecture on the influence of nutritional deficiency on pregnancy and childbirth. These effects are amazingly small, as has also been noted during and after the first world war. Toxemias of pregnancy have decreased by 50 per cent because of the lack of proteins. The birth weight is more often than formerly below 3,000 Gm. (6 pounds 11 ounces). There are 5 per cent more premature babies. There is a decidedly bad influence on lactation. In the field of gynecology nutritional deficiencies play a more important role, as can be expected in the field of illnesses as contrasted with the normal functions of pregnancy and childhood. Martius (Göttingen) spoke on radiation therapy and reported on the opening of an institute of nuclear physics in Göttingen. On the last day of the meeting, operations were performed at all gynecologic clinics ad demonstrandum for the guests.

Psychiatrists.—On Sept. 11, 1947 the first international congress of psychiatrists was opened in Tübingen (French zone), in which representatives from England, France, Switzerland and the United States participated.

Miscellaneous

Some time ago the daily press reported that the rector of Leipzig University had declared that the medical faculty will have to close by the end of the summer term. The reason given was a statement made by the dean of the medical faculty that he could not further assume responsibility for the training of medical students if the teaching staff would not be immediately strengthened by the hiring of new, qualified teachers.

ITALY

(From Our Regular Correspondent)

Jan. 2, 1948.

Vaccination with Anatuberculin

At a meeting of the Medical Academy "Filippo Pacini" at Pistoja, Professor Gaetano Salvioli discussed the fate of those vaccinated with killed tubercle bacilli. For about fifteen years there has been employed in Italy a prophylactic antituberculous vaccination by means of killed germs (Petragnani's anatuberculin) which was designated "Petragnani-Salvioli's vaccination by infection." The method consists in producing four infectious lesions on the skin by inoculation with considerable doses of formaldehyde-killed Mycobacterium tuberculosis. The four lesions, like other tuberculous lesions, may have a course of several months' duration. Histologically they consist of tuberculous tissue, and they leave a permanent scar. Thus a persistent allergy is caused (the percutaneous allergy disappears first, while the intradermic will last longer) and a specific resistance is established. The defense depends, according to Salvioli, on the course of this artificial primary tuberculous infection. This defense has been demonstrated by studies on children aged 6, 7 or 8 years, vaccinated at birth, who immediately afterward were exposed to contagious contacts without any postvaccinal precautions such as are taken after BCG vaccination. In general these children were poor and had suffered considerably from the war.

The Vaccine Center of Bologna carried out the vaccination by infection on 5,700 infants in the course of eight years. In the vaccinated subjects who were controlled at the age of 7 years the mortality was lower than the average mortality at this age in the city of Bologna. With Mantoux's test always performed seven years after the vaccination, the allergy was positive in 90 per cent of the vaccinated children.

Among those living with tuberculous members of their families (55 cases), about three fourths (41 cases) did not manifest, either on roentgenologic examination or by an allergic response, a past infection. One fourth of the patients, according to the skin reaction and the results of the roentgenologic examination, apparently had overcome a latent infection; in a few subjects the infection was still acute, although they had a measurable degree of allergy and were in good physical condition.

In some groups of siblings living with tuberculous contacts the health of a vaccinated child was compared with that of a nonvaccinated sibling. In one third of the vaccinated children a past infection was demonstrated, but apparently they were in good health and their resistance was more favorable than that of the nonvaccinated siblings, all of whom presented symptoms of infection or of tuberculous disease. There were 3 fatalities among 4,500 vaccinated children residing in Bologna. All 3 children died before reaching 1 year of age and had contracted the infection definitely early in their lives and in the pre-antiallergic period.

According to Professor Salvioli, the results obtained with the killed vaccine surpass those obtained with the living BCG vaccine and are due to the course of the vaccine-induced infection and to the characteristic properties of vaccine produced with killed germs of anatuberculous nature. The attenuated germ is perishable, while the killed germ is stable and deprived of the stimuli which contribute to the digestion of the bacilli. In Sweden Professor Rinvik, by using killed Bacillus Calmette-Guérin for subcutaneous injections, has succeeded in obtaining an immunizing preparation for Koch's phenomenon which could not be obtained in persons vaccinated with living bacilli taken orally. The allergy obtained with killed BCG organisms has been demonstrated by Rinvik and by Manclouf in France.

Professor Salvioli stated his conviction that preference should be given to the killed vaccines because they are more active and nonperishable and since by using them the troubles caused by the living BCG vaccine can be avoided regardless of the route of introduction. For efficient vaccination an infectious vaccine-induced lesion of the Salvioli type is required, and this may be produced by inoculation of the vaccine into the skin.

After Professor Salvioli's report Dr. Magni, director of the hospital for abandoned children in Pistoja, reported his experience with BCG vaccine; his results showed that the children vaccinated by this method had manifestations of general dystrophia and presented a diminished resistance to infections.

Professor Fiore, director, pediatric clinic, University of Pisa, pointed out the importance of Professor Salvioli's report. He predicted a new era in the practice of antituberculous vaccination. Professor Salvioli in answering the various speakers recalled that since 1927, when Professor Magni reported on the reduction of resistance in persons vaccinated with BCG, an accentuation of the specific resistance has not been demonstrated in these vaccinated persons. With reference to Professor Buonomini's opinion that research should be performed to find an antigen and a type of vaccination which would eliminate the evolution of the vaccinal infection, Professor Salvioli recalled the statement made during the discussion by Professor Grassi, who, perceiving the principle involved in vaccination by infection, agreed that it is necessary to produce in the subject of vaccination this insignificant and innocuous tuberculous disease and that this may be obtained with Salvioli's vaccine.

BRAZIL

(From Our Regular Correspondent)

São Paulo, Dec. 26, 1947.

Plague in Brazil

Plague is not uncommon in Brazil. Drs. João de Barros Barreto and Almir de Castro, of the Oswaldo Cruz Institute, have tabulated in three year periods the 2,610 cases which occurred from 1934 to 1945.

The federal government in 1936 started a systematic antiplague program. The disease is now limited to the so-called Brazilian northeast with the state of Pernambuco as the major focus where, since 1934, 40 to 50 per cent of the total cases have occurred.

From the cases recorded during the 1941-1945 period, Drs. Castro and Barreto showed that more than 50 per cent of the 1,610 confirmed cases were in persons over 50 years of age. Except for 9 cases of pneumonic plague and 13 cases of septicemic plague, all the patients showed the bubonic form.

The case fatality rate in the period under consideration was 26 per cent, or only 12 per cent if patients who did not receive any treatment are excluded. The administration of sulfonamide drugs in place of antiplague serum reduced the case fatality rate.

Drs. Barros Barreto and Almir de Castro found evidence suggesting that Mus musculus may also play a part in the spread of the disease. Reference is made to twenty-six observations of wild rodents naturally infected with plague in the states of Ceará, Pernambuco and Alagôas.

Xenopsylla cheopis is the predominant species of flea in the tropical section of the country. Its density decreases as the latitude goes higher, inversely to what happens with Xenopsylla brasiliensis, which is the most prevalent in the temperate southern state of São Paulo.

Correspondence

THE PAPANICOLAOU TEST FOR UTERINE CANCER

To the Editor:—In The Journal of the American Medical Association, January 31, page 331, the editorial on "The Papanicolaou Test for Uterine Cancer" concludes with the paragraph:

"Recently a manufacturer of laboratory equipment has promoted the sale of the materials for the Papanicolaou test together with a hundred slides of various types of cells found in cervical smears. The firm cannot, however, sell the most important ingredient—a competent pathologist to study the specimen promptly after it is secured from the patient. The offer implies that special training is not necessary to secure and to examine the specimen. The indiscriminate use of this test will result in more harm than good."

We wish to take exception to the statement, "the offer implies that special training is not necessary to secure and to examine the specimen." Our advertisement (adv. p. 54) in the Dec. 27, 1947 issue of The Journal very prominently displays in a boxed-off area heading the advertisement and under the main title the following statement: "IMPORTANT! The taking of smears, scrapings, etc. *in preparation* for staining and diagnosis is a relatively simple matter and can be done by any trained doctor or technician—the staining and diagnosis should be done *only by those prepared by intensive training in the technic.*" This statement is carried in practically all of our advertising except perhaps the first few hundred sheets of literature which we put out, and which we subsequently withdrew. The literature which is now obsolete will soon be replaced by literature which we have some weeks ago arranged to have read by Dr. George N. Papanicolaou and approved by him. We also plan to send the same literature to Dr. J. Ernest Ayre, Royal Victoria Hospital, Montreal, Canada, and possibly to the New York office of the American Cancer Society.

To quote further, the editorial states: "The firm cannot, however, sell the most important ingredient—a competent pathologist to study the specimen promptly after it is secured from the patient." Our organization and I in particular have done more than what we consider to be a reasonable amount of work in the direction of obtaining information on competent pathologists or doctors who can stain and diagnose the smears. We have in the past limited our recommendations to men who were unquestionably qualified to stain and diagnose the tests. These are, of course, Dr. George N. Papanicolaou at the Cornell Medical College; Dr. J. Ernest Ayre at the Royal Victoria Hospital, Montreal, Canada; Dr. Herbert F. Traut at the University of California Medical School; Dr. Olive Gates at the New England Deaconess Hospital in Boston, and one or two others. Frankly, we have hesitated to recommend any one because we are not in a position, generally speaking, to evaluate the qualifications of a diagnostician to perform such a test. The men who have been mentioned are unquestionably qualified.

Since we became interested in the instrumentation for this Papanicolaou test, we have contacted Dr. Papanicolaou to request information on qualified diagnosticians. Such a list was not available from Dr. Papanicolaou. We then contacted Dr. Austin V. Deibert at the U. S. Public Health Service in Bethesda, Md., and he wrote us on November 5, 1947, that their office does not have a listing of such clinical facilities, and when such inquiries are received, they are referred to the respective state health department. We followed exactly the same procedure with the American Cancer Society, requesting them to furnish us with a list. They too are in the process of preparing a list of doctors who are qualified to stain and diagnose the Papanicolaou smears. They would not, however, evaluate the qualifications of the doctors. To our way of thinking, a listing of this type would add very little, and as a matter of fact might detract from the original purpose for which it was prepared, since doctors who would take the smears would be inclined to send them to the persons listed without any knowledge of the qualifications of the individual who would make the diagnosis.

At the last meeting of the American Society of Clinical Pathologists, the writer had occasion to discuss the problem with many of the men, including those who discussed the problem at the conference on cytology smears. At that meeting the Papanicolaou technic was given a "thorough run-down" without the benefit of any proponent for the technic being present. The writer discussed the nontechnical aspects of such a "going over" and suggested that an organization such as the American Society of Clinical Pathologists should be in a position to have a more qualified appraisal of the technic and, furthermore, to recommend from among their members those who were qualified and those who were not qualified to diagnose by the technic.

As far as we know, the American Medical Association has not attempted to standardize or evaluate the qualifications of any of the men in the technic.

The foregoing should prove that we have not taken on the sale and distribution of the apparatus indiscriminately. We have on our part done whatever possible to keep the application of the technic in ethical qualified hands which should, we believe, be the responsibility of the medical profession in general and the various specialized medical societies in particular.

Mention is also made of the fact that we offered, together with the materials for the Papanicolaou test, a hundred slides of various types of cells found in cervical smears. This collection of slides is our "Medichrome" series MG3. They were made with the cooperation of Dr. J. Ernest Ayre of the Royal Victoria Hospital in Montreal. Dr. Ayre is one of the most active proponents of Dr. Papanicolaou's technic.

The "Medichrome" collection of 2 by 2 inch (35 mm.) kodachrome photomicrographs and photographs is, we feel, a very definite contribution to the field of medical education. The collections cover many branches of the medical specialties. Each series has been developed with one or more well known authority in the field. The names of the men connected with this project will verify this statement. We therefore feel that the reference to "a hundred slides of various types of cells found in cervical smears" is unwarranted.

From the foregoing, we belive it will also be agreed that the statement "the offer implies that special training is not necessary to secure and to examine the specimen" is not implied at all.

We should like it clearly understood that the Clay-Adams Company, Inc., while a commercial organization in business for profit, would not under any circumstances sacrifice its well established ethical methods for any monetary gain. Our activities in the medical field substantiate this statement. However, the company is made up of human beings, and human beings are not infallible. We are always open to suggestion, particularly suggestions which are constructive, and we are open minded to the extent that we would gladly modify any of our advertising or promotional activities to conform to what the doctors and medical profession in general expect of us.

Emil Davidson, vice president,
Clay-Adams Company, Inc.,
New York 10.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Cancer Ascribed to Stilbestrol—Statute of Limitations.—The plaintiff sued for damages resulting from the alleged malpractice of the defendant physician. From a judgment of the trial court dismissing the complaint, the plaintiff appealed to the district court of appeal, second district, division 3, California.

The plaintiff alleged that she engaged the defendant physician in January 1942 to examine her physical condition and prescribe medical treatment therefor From that time to June 1943, the defendant prescribed a substantial quantity of medicine containing stilbestrol in tablet form and on June 1 directed the plaintiff to obtain a hundred more tablets to be taken at the rate of one daily. After she had taken these tablets, she took twenty-six more on the directions of another physician, whom she is also suing. The plaintiff further alleged that stilbestrol is a synthetic estrogen containing cancerous properties which may produce or cause cancer of a woman's breast, particularly of a woman with a family history of cancer of the breast, and should not be administered for prolonged periods of time. When its administration is indicated, it should be prescribed only after a physical examination of the patient has been made. According to the plaintiff, the defendant physician knew that the plaintiff had such a family history in that her mother had had cancer of the breast and had died therefrom. On or about Jan. 15, 1945, while the plaintiff was under the care and treatment of the defendant and another physician, there developed in her right breast a lump, which laboratory tests on Feb. 8, 1945 disclosed to be cancer. On Feb. 10, 1945, she was required to and did submit to the removal by surgery of her right breast in order to prevent the cancer from growing and spreading to other parts of her body. In conclusion the plaintiff alleged that she did not know that the drug so prescribed for and taken by her contained properties which might cause her to sustain cancer of the breast and that the cancer developed because of the failure of the defendant physician to possess or exercise that degree of skill and learning ordinarily possessed and exercised by other skilful physicians practicing in Los Angeles County in the prescribing of such medicine over such a long period of time.

"It is the settled law in this state," said the court, "that an action by a patient against a physician and surgeon for injuries sustained by the former, by reason of the negligent or unskilled treatment of the latter, is an action sounding in tort and not upon a contract. Such an action is therefore barred by the provisions of subdivision 3 of section 340 of the Code of Civil Procedure one year after the date of the injury." The defendant contended that the action had not been filed within one year.

The date of the injury, which starts the running of the statute of limitations, said the court, is not necessarily the same date as that when the negligent act or omission of the physician took place. The defendant conceded the applicability of this rule to cases arising from surgery, in which the patient subsequently discovers foreign substances such as sponges, clamps, tubes, pieces of broken bones and other objects to have been left in his body, but contended that it does not appy to the administration or introduction into the patient's body of a drug or medicine. We fail to find any basis of differentiation, however, in the respective situations, said the court. The nature or character of the foreign substance or matter introduced into the body of the patient by the physician is immaterial. The physician is chargeable with knowledge and foresight, to the degree of learning and skill possessed by physicians of good standing practicing in the same locality, of both the nature and effect of such foreign substance or matter on the patient. Where injury proximately results from the negligent act of the physician on whom the patient has relied for information as to his physical condition as well as for the results that may reasonably be anticipated from the introduction into his body of the foreign substance or matter, including drugs and medicines, the statute of limitations does not commence to run until the patient knows, or in the exercise of ordinary care should have known, the cause of his injury.

The plaintiff's amended complaint alleges facts showing that the plaintiff first discovered the bodily injury, accruing to her as a proximate result of the alleged negligent act of defendants, on Feb. 8, 1945. Her complaint was filed within the one year period following such discovery, and therefore the defense of the statute of limitations was unavailable to the defendant. Accordingly the judgment of dismissal in favor of the defendant in the trial court was reversed.—*Agnew v. Larson, 185 P. (2d) 851 (Calif., 1947).*

Medical Motion Pictures

FILM REVIEW

Hypothyroidism—Physiology, Diagnosis and Treatment. 16 mm., color, sound, 1,600 feet (one reel), showing time forty minutes. Prepared in 1946 by J. Lerman, M.D., the Massachusetts General Hospital, Boston. Produced by the Medical Film Guild, New York under a grant from the Maltine Co., New York. Procurable on rental from the Medical Film Guild, 167 West Fifty-seventh Street, New York 19.

The film is an illustrated lecture covering the early knowledge of the thyroid; the histology of the thyroid gland; the classification of hypothyroidism with a discussion of each of the classes, that is, cretinism, juvenile myxedema, adult myxedema and pituitary myxedema; the regulation of thyroid activity; the etiology of hypothyroidism; the physiologic actions of the thyroid hormone in detail; the pharmacology of the thyroid secretion with a few notes on the use of radioactive iodine and the Geiger counter; the biochemistry of thyroid globulin and technic of extraction; the methods of assay of thyroid preparations; the technic of determining the basal metabolic rate; the diagnosis of hypothyroidism; its treatment, and the use of thyroid in other conditions. It is regrettable that the author tried to include so much in one film. The pictures, still and moving, of patients with various types of hypothyroidism are good. These plus a discussion of the diagnosis of hypothyroidism are sufficient in themselves to make an excellent motion picture. The discussion and diagrams illustrating the relationship of the thyroid gland to the other endocrine glands are clear and to the point. The charts contain much information, but they flick by too fast to leave much of an impression. A few illustrations are meaningless and could well be eliminated. If, after the sprint through the biochemistry of the thyroid hormone, the pace was slowed and the treatment of hypothyroidism was revealed more leisurely, there would be enough material for another informative lecture. As it is, the listener has little time to absorb the facts and as a result retains little of the information.

The suggestion for additional uses of thyroid medication in conditions other than hypothyroidism need further amplification to avoid misleading implications; for instance, the use of thyroid for obesity with or without a low basal metabolic rate should be reserved for persons who have hypothyroidism, and many warnings (including some from the Council on Pharmacy and Chemistry) have been issued to this effect. Nor can this be generally regarded as a useful substance for amenorrhea and habitual abortion except in the presence of hypothyroidism. There are a number of inaccuracies in the film, for example, it is not correct to say that the use of globulin fraction of the thyroid is the preferred treatment. It may be preferred by those concerned in producing the film but certainly is not true for other firms nor would it be supported by all clinicians. The trade product "proloid" (a thyroglobulin preparation from thyroid gland, containing 2 per cent iodine in organic combination) is mentioned, but the picture gives no information on its exact dosage or its advantages and disadvantages as compared with other thyroid preparations. A frank description of the product accompanied by open discussion of its advantages and disadvantages, if any, would have served better.

If a reasonably well informed physician were to view this film a dozen times he would undoubtedly obtain a thorough knowledge of hypothyroidism. To the physician who is well versed in diseases of the thyroid most of the film is rather boring. It is difficult to visualize a suitable audience for it. In an effort to cover the entire field in so short a time and to make an all-inclusive appeal to all groups, the specific educational value to any particular group has been destroyed.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in The Journal, Feb. 28, page 644.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 22-24, 1948. Sec., Dr. D. G Gill, 519 Dexter Ave., Montgomery 4

Arkansas: * *Examination.* Little Rock, June 3-4 Sec., Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 3. Sec., Dr. C. H. Young, 1415 Main St., Little Rock

California: *Oral.* San Francisco, June 5-6; Los Angeles, Aug. 7-8. *Written Examination.* Los Angeles, Aug. 9-12. *Oral and Clinical Examination for Foreign Graduates.* San Francisco, June 6. Sec., Dr. Frederick N. Scatena, 1020 N Street, Sacramento 14.

Colorado: * *Examination.* Denver, June 21-23. Final date for filing application is June 5. *Endorsement.* Denver, April 6. Final date for filing application is March 20. Sec., Dr. J. B. Davis, 831 Republic Bldg., Denver.

Connecticut: * *Examination.* March 9 10. Sec., Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic Examination.* Derby, March 9-10 Sec., Dr. J. H Evans, 1488 Chapel St., New Haven.

Delaware: *Examination.* Dover, July 13. *Endorsement.* Dover, July 22. Sec., Dr. J. S. McDaniel, 225 S. State St., Dover.

District of Columbia: * *Reciprocity.* Washington, D. C., March 8. Sec., Commission on Licensure, Dr. G. C. Ruhland, 4130 E Municipal Bldg., Washington.

Florida: * *Examination.* Jacksonville, June 29-30. Sec., Dr. Harold D. Van Schaick, 6675 Windsor Lane, La Gorce Island, Miami Beach 41.

Idaho: Boise, July 13-15. Sec., Bureau of Occupational Licenses, Miss Estella S. Muliner, 355 State House, Boise.

Illinois: Chicago, April 6-8. Supt., Dept. of Registration and Education, Mr. Fred W. Ruegg, Springfield.

Indiana: *Examination.* Indianapolis, June 1948. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, K of P Bldg., Indianapolis.

Iowa: * *Examination.* Iowa City, March 15-17. Comm., Dr. Walter L. Bierring, Dept. of Health, Des Moines.

Kansas: Kansas City, June 9-10. Sec., Board of Medical Registration & Examination, Dr. J F. Hassig, 905 N. 7th St., Kansas City.

Kentucky: *Examination.* Louisville, June 16-18. Sec., Dr. P. E. Blackerby, 620 S. 3d St., Louisville.

Maine: Portland, March 9-10. Sec., Board of Registration of Medicine, Dr. A. P. Leighton, 192 State St., Portland

Maryland: *Medical Examination.* Baltimore, June 15-18. Sec.-Treas., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic Examination.* Baltimore, June 15-16. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

Massachusetts: *Examination.* Boston, March 9-12. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413 E State House, Boston.

Mississippi: Jackson, June 1948. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

Missouri: *Examination.* St. Louis, May 24-26. Final date for filing application is April 24. Exec. Sec., Mr. John A. Hailey, State Capitol Bldg., Jefferson City.

Montana: Helena, April 5-7. Sec., Dr. O. G. Klein, First Nat'l Bank Bldg., Helena.

Nebraska: * *Examination.* Omaha, April 5-7. Dir., Mr. Oscar F. Humble, Room 1009 State Capitol Bldg., Lincoln 9.

Nevada: Carson City, May 3. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

New Hampshire: *Examination.* Concord, March 11-12. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord.

New Jersey: *Examination.* Trenton, June 15-17. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

North Carolina: *Endorsement.* Pinehurst, May 4. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

North Dakota: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

Ohio: *Endorsement.* Columbus, April 6. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

Oklahoma: * Oklahoma City, June 2-3. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: * *Endorsement.* Portland, May 7-8. Final date for filing application is April 23. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland.

Pennsylvania: *Examination.* Philadelphia & Pittsburgh, July. Act. Sec., Bureau of Professional Licensing, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

Rhode Island: * *Examination.* Providence, April 1-2. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Written Examination.* Columbia, June 21-23. *Endorsement.* April 5. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

Tennessee: * *Examination.* Memphis, March 24-25. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

Utah: *Examination.* Salt Lake City, June, 1948. Asst. Dir., Department of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

Virginia: *Examination.* Richmond, June 18-19. *Endorsement.* Richmond, June 17. Sec., Dr. K. D. Graves, 306 Medical Arts Bldg., Roanoke.

West Virginia: Charleston, April 5-7. Comm., Public Health Council, Dr. N. H. Dyer, State Capitol Bldg., Charleston.

Wisconsin: * Milwaukee, June 29-July 1. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

Wyoming: *Examination.* Cheyenne, June 7. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

---

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona: *Examination.* Tucson, March 16. Sec., Mr. Francis A. Roy, Science Hall, Univ. of Arizona, Tucson.

Arkansas: Little Rock, May 4. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

District of Columbia: *Examination.* Washington, April 19-20. Sec., Dr G. C Ruhland, 4130 Municipal Bldg., Washington

Florida. *Examination.* June 5. Final date for filing application is May 23 Sec., Mr M. W Emmel, Univ of Florida, Gainesville

Iowa: Des Moines, April 13, July 13, Oct 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids

Michigan: *Examination.* Ann Arbor and Detroit, May 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

Minnesota: *Examination.* Minneapolis, April 6-7. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

Nebraska: *Examination.* Omaha, May 4-5. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, Room 1009 State Capitol Bldg., Lincoln 9.

New Mexico: *Examination.* Santa Fe, March 21. Sec., Miss Marguerite Kilkenny, 114 E. Marcy, Santa Fe.

Oklahoma: Oklahoma City, April 2. Sec., Dr. Frank Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: *Examination.* Portland, June 19. Sec., Basic Science Examining Committee, Mr. C. D Byrne, Univ of Oregon, Eugene.

South Dakota: *Examination.* Vermillion, June 4-5. Sec., Dr. G. M. Evans, 310 E. 15th St., Yankton.

Tennessee: Memphis, March 15-16. Sec., Dr. O. W. Hyman, Univ. of Tennessee, 874 Union Ave., Memphis.

Wisconsin: *Examination.* Madison, April 3. Sec., Dr. W. H. Barber, Scott & Watson Sts., Ripon.

Council on Medical Education and Hospitals

PLAN FOR UNIFORM INTERN PLACEMENT

The following new agreement for internship placement was unanimously approved by the Association of American Medical Colleges at its meeting at Sun Valley, Idaho, on Oct. 28, 1947. Subsequently the plan has been endorsed by the Council on Medical Education and Hospitals of the American Medical Association, the Council on Professional Practice of the American Hospital Association, the Catholic Hospital Association and the Protestant Hospital Association.

Plan for the Year 1948-1949 for Internships Beginning July 1, 1949

1. Applications and credentials to be submitted only through the dean's office to hospitals, with the date for filing applications and release of credentials by the medical schools set at Oct. 15, 1948. Credentials ordinarily will consist of an executed application blank and a letter from the dean but do not preclude such letters from members of the faculty as they may wish to write, unsolicited by the candidate.

2. Applicants may visit hospitals and be interviewed by hospital intern committees, but the hospital administration shall not commit the hospital or obligate the applicant, or potential applicants, before Nov. 15, 1948.

3. No intern appointments shall be made prior to Nov. 15, 1948 from applicants who are members of the senior class in medical school. Hospitals may decline an applicant at any time.

4. Applicants shall accept or reject hospital appointments before midnight of Nov. 18, 1948.

5. These regulations shall apply only to undergraduate medical students who have not completed the fourth year of their medical school course.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage *(6 cents if one and 18 cents if three periodicals are requested)*. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American Heart Journal, St. Louis

34:785-962 (Dec.) 1947

Normal Variations in Multiple Precordial Leads. G. B. Myers, H. A. Klein, B. E. Stofer and T. Hiratzka.—p. 785.

Variations in First Heart Sound in Complete A-V Block. O. W. Beard and G. M. Decherd Jr.—p. 809.

Electrocardiographic Pattern of Infarction of Interventricular Septum, Extending from Anterior to Posterior Aspect of Heart. H. Roesler and W. Dressler.—p. 817.

Myocarditis: Classification of 1,402 Cases. I. Gore and O. Saphir.—p. 827.

*Myocarditis Associated with Acute Nasopharyngitis and Acute Tonsillitis. I. Gore and O. Saphir.—p. 831.

*Etiology of Clubbing of Fingers. E. F. Mauer.—p. 852.

*Inhibition of Paroxysmal Ventricular Tachycardia by Atropine. M Wilburne, A. Surtshin, S. Rodbard and L. N. Katz.—p. 860.

Lanatoside C in Treatment of Persistent Paroxysmal Auricular Tachycardia. A. S. Weisberger and H. Feil.—p. 871.

An Analysis of Time Relationships Within Cardiac Cycle in Electrocardiograms of Normal Men: V. Effect of Changing Heart Rate upon Q-T Interval and T-P Interval and Their Respective Relationships to Cycle Length (R-R Interval). I. Schlamowitz.—p. 878.

Myocarditis Associated with Nasopharyngitis and Tonsillitis.—Gore and Saphir encountered in the material of the Army Institute of Pathology 35 instances of nonrheumatic myocarditis associated with infections of the upper respiratory tract. Acute tonsillitis was present in 12, and acute nasopharyngitis in 23. The diagnosis of pharyngeal or tonsillar infection was made clinically. Streptococci were cultured from the throat in 12 and from the heart's blood, post mortem, in 3. Septicemia was not considered of etiologic moment since visceral alterations were absent in all 35, and negative blood cultures were obtained in 13. Although the pathologic studies indicated that all patients died of cardiac failure, heart disease was suspected clinically in only 3, and in 15 patients death was unexpected. Significant clinical observations which would seem to be of importance in the recognition of the process were: disproportion of the temperature and pulse rate, hypotension, thready or feeble pulse and substernal oppression. Cyanosis, dyspnea and orthopnea occurred frequently. Necropsy findings included significant enlargement of the heart in many cases. The microscopic changes, similar in both nasopharyngeal and tonsillar infections, have been classified. There appears to be significant correlation between the clinical occurrence of hypotension and the severity of the myocarditis, since it was a feature in every case of severe disease in which the blood pressure was recorded. The only available electrocardiograms (four), abnormal in every case, were from patients whose hearts showed muscle degeneration. Anginal pains were related to the presence of hypotension. Attention is called to the danger involved in the intravenous administration of fluids.

Etiology of Clubbing of Fingers.—Mauer says that although toxic, neuritic, mechanical, static, anoxic and other factors have been considered in the etiology of clubbing of the fingers, no theory has gained wide acceptance. Clubbing of the fingers and toes, and the more severe "pulmonary" osteoarthropathies and periostitides, occur when there is arterial anoxia due to congenital or acquired lesions or residence at high altitude. It occurs in many disorders in which the erythrocyte sedimentation rate is rapid, but arterial oxygen saturation normal. In all these cases the vascular bed is wide, blood flow rapid and the tissue warmer than normal. It had been suggested that rapid sedimentation rates, with intravascular formation of rouleaux, interfered with oxygenation of the tissues by decreasing the diffusion surface per unit of hemoglobin. Mauer suggests that with escape of rouleaux through the arteriovenous anastomoses so numerous in the fingers and toes, rapid blood flow and high levels of arterial and venous oxygen saturation may be present simultaneously with low oxygen tension in the digital tissues. Thus, rapid rates of blood flow and low oxygen tension in the tissues would provide the same mechanism for clubbing in chronic infections, neoplasms or metabolic defects leading to abnormal levels of fibrinogen and globulin, as in the classic cases of arterial anoxia. The most rapidly evolving and the most severe types of osteoarthropathy are seen in cases of mediastinal and pulmonary tumors in which the sedimentation rates are rapid and arterial anoxia is present. In rheumatoid arthritis, in Raynaud's disease and in Buerger's disease clubbing is rare, although tissue anoxia is severe in the latter two and rapid sedimentation rates are characteristic of the former. But in all of these, flow of blood and temperatures of the tissues are low in the tips of the extremities. It is concluded that for the development of clubbing low oxygen tensions must occur in tissues which are warm and in which the blood flow is greater than normal.

Inhibition of Ventricular Tachycardia by Atropine.—In the course of studies on the effects of sympatholytic agents Wilburne and his co-workers observed that the rapid intravenous injection of epinephrine provides a simple and effective method for the experimental production of ventricular tachycardia in the intact, unanesthetized animal. Atropine sulfate, 1.3 mg. administered intravenously, prevented the development of ventricular tachycardia. Apparently this is due, in some cases, to the action of atropine in permitting the sinus node to discharge at a rate more rapid than that of the ventricular focus, the former thereby retaining its pacemaker function. Not all cases can be explained in this way. It appears that atropine operates also on the acetylcholine esterase system to prevent reflex cholinergic actions of epinephrine. Atropine seems to be of value in preventing ventricular tachycardia and maintaining a sinus tachycardia. This is of particular importance in myocardial infarction, in which the evolution of recent ventricular tachycardia to fibrillation may be averted. It is suggested that the beneficial effects of atropine in lowering mortality in experimental ligation of a coronary artery may be due in large part to its prevention of ventricular tachycardia and terminal ventricular fibrillation.

American J. Digestive Diseases, Fort Wayne, Ind.

14:341-380 (Nov.) 1947

Increased "Folic Acid" Requirements Resulting from Thyroxin Injection. G. J. Martin.—p. 341.

Effect of Short Wave Diathermy on Secretory Activity of Fasting Normal Human Stomach E. D. Palmer.—p. 342.

Submucous Lipoma of Transverse Colon with Intussusception. A. Dallos.—p. 345.

Importance of Vi Antigen. Viola Mae Young and O. Felsenfeld.—p. 349.

Pathophysiology of Diabetes Mellitus. R. A. Nelson Jr.—p. 352.

Adrenergic Potentiation, a Pharmacodynamic Effect Associated with Antihistaminic Agents. F. F. Yonkman.—p. 360.

Histoplasmosis. M. E. Dailey.—p 363.

*Cell Cleaning Therapy and Liver Cell Gymnastics in Treatment of Chronic Hepatitis. B. O. C. Pribram.—p. 365.

Ileo-Colic Fistula Due to Cancer of Descending Colon: Operative Results. A. Strelinger.—p. 371.

Liver Cell Gymnastics in Hepatitis.—Pribram points out that when a dye is injected in preparation for cholecystography, it disappears from the blood within thirty to forty minutes. The gallbladder becomes visible by roentgen ray as a rule only about fourteen hours following the injection. When, after the dye, 20 cc. of a 50 per cent solution of dextrose is injected, the gallbladder gives a shadow of sufficient density within two hours. When a large amount of dextrose is suddenly offered to the liver cell, it cleans out the stores of other products to make space for the increase in its glycogen. While with an ample supply of dextrose one is in a position to favor and to reinforce the assimilatory function, one is able through the application of thyroxin, to stimulate the dissimilatory phases. This training might lead to increased functional activity of a damaged liver cell. The liver cell gymnastics employed by the author were *started* by injection of a hypertonic solution of dextrose (20 cc. of a 50 per cent solution) intravenously. Then, two days of dextrose-insulin treatment were followed by two days of thyroxin injections with complete omission of carbohydrate from the diet. These rhythmic gymnastics were continued for six weeks. This method of treatment has been tried on patients with chronic hepatic insufficiency, in many types of hepatitis and especially in cases of cirrhosis. In the latter cases particularly, the results could be called convincing and sometimes even dramatic. Since the outbreak of the war brought the follow-up work to an end, the author is unable to say how long improvement lasts and whether the liver cell gymnastics can bring the process of liver destruction to a standstill. He believes that this scheme of treatment is worth trying, as it involves no risks.

American Review of Tuberculosis, New York

56:373-484 (Nov.) 1947

Constitution of Chemotherapeutic Agents in Experimental Tuberculosis. B. L. Freedlander and F. A. French.—p. 373.
Test Tube Evaluation of Tuberculostatic Agents. G. P. Youmans.—p. 376.
Chemotherapeutic Testing in Experimental Tuberculosis. M. I. Smith.—p. 377.
Streptomycin in Guinea Pig Tuberculosis. W. Steenken Jr.—p. 382.
Technic of Streptomycin Administration. H. C. Hinshaw and W. H. Feldman.—p. 385.
*Effect of Streptomycin on Early Tuberculous Pulmonary Lesions: Preliminary Report. D. E. Jenkins, W. M. Peck, J. J. R. Reid and H. S. Willis.—p. 387.
Effect of Streptomycin on Exudative Pulmonary Tuberculosis. M. W. Fisher, R. L. Tingey and J. B. Wallace.—p. 396.
Effect of Streptomycin on Recent Tuberculous Pulmonary Infiltration. R. O. Canada.—p. 398.
Streptomycin in Tuberculous Pneumonia. S. T. Allison.—p. 401.
*Excretion of Streptomycin in Tuberculous Cavities, Pleural Space and Tracheobronchial Tree. W. Steenken Jr., N. D. D'Esopo and E. Wolinsky.—p. 403.
Streptomycin in Tuberculous Laryngitis. M. Black and E. Bogen.—p. 405.
*Streptomycin in Tuberculous Tracheobronchitis. L. A. Brewer III and E. Bogen.—p. 408.
Streptomycin in Tuberculous Enteritis. H. C. Sweany.—p. 415.
Multiple Pulmonary Calcifications. E. A. Riley.—p. 423.
Miliary Tuberculosis Treated with Streptomycin: Report of Case with Necropsy Findings. F. H. Taylor and G. G. Snively.—p. 438.
Streptomycin Treatment of Tuberculosis. E. Bogen.—p. 442.

Streptomycin in Early Pulmonary Tuberculosis.—Jenkins and his co-workers treated 23 patients with recently acquired pulmonary tuberculosis by intramuscular administration of 2 Gm. of streptomycin daily in divided doses every four hours for ninety days while on a specially supervised program of bed rest. An additional 22 patients received the same schedule of bed rest but without the drug. The majority of patients in this study had serious tuberculosis at the onset of treatment. On the basis of evidence provided by roentgenographic observations and bacteriologic data, it appears that streptomycin exerts a beneficial effect on the course of early pulmonary tuberculosis in excess of what may be obtained by bed rest as the sole form of treatment. These observations do not extend beyond a period of six months after the initiation of the treatment. The earlier in the course of the disease streptomycin therapy is started, the better and more consistent are the results. Streptomycin, in their experience, has exerted a somewhat more beneficial effect thus far on hematogenous or nonconfluent types of pulmonary infiltrations than on dense, confluent lesions.

Excretion of Streptomycin into Tuberculous Cavities.—Steenken and his co-workers report sixty streptomycin assays on the material recovered from large tuberculous cavities, the tracheobronchial tree and the pleural space of 13 patients who received streptomycin intramuscularly in doses of 1.8 to 2 Gm. daily. The individual dose was usually 0.3 Gm. every four hours. The average concentrations of the drug in the tuberculous cavities, the pleural space and the tracheobronchial tree were much greater than those which completely inhibit the growth of tubercle bacilli in vitro.

Streptomycin in Tuberculous Tracheobronchitis.—Brewer and Bogen treated 44 patients with persistent, severe, ulcerating and granulating tuberculous lesions of the trachea and larger bronchi with streptomycin. Thirteen patients were given combined intramuscular and aerosol inhalation treatment with large dosage of a total of 2.4 to 3 Gm. daily. All patients showed rapid, complete healing. Less rapid and less uniform results were obtained in 12 patients who received smaller doses intramuscularly (2 Gm. daily) and in 12 patients treated by aerosol alone. Vestibular paralysis developed in all the patients receiving 2 Gm. of the drug daily for over two months and in some of those receiving 1 Gm., but most of them learned to compensate fairly well. Other toxemic phenomena included anorexia, nausea, vomiting, vertigo, tinnitus, stomatitis and eosinophilia. Such rapid and complete healing as with the combined intramuscular and aerosol inhalation treatment has not been observed in other patients with similar lesions observed previously or simultaneously under different therapeutic regimens. This study indicates that streptomycin is the most effective therapeutic agent in the treatment of the most severe types of active tuberculous tracheobronchitis, but further work is needed regarding dosage and route of administration.

Archives of Dermatology and Syphilology, Chicago

56:715-886 (Dec.) 1947

*Histoplasmosis: Cutaneous and Mucomembranous Lesions, Mycologic and Pathologic Observations. H. E. Miller, Frances M. Keddie, H. G. Johnstone and W. L. Bostick.—p. 715.
Poikiloderma Vasculare Atrophicans: Report of Case with Observations at Autopsy. J. G. Downing, J. M. Edelstein and T. B. Fitzpatrick.—p. 740.
Simple Plastic Mount for Permanent Preservation of Fungi and Small Arthropods. W. M. Huber and S. M. Caplin.—p. 763.
Acrodermatitis Pustulosa Perstans (So-Called Pustular Psoriasis). W. Sachs, G. M. MacKee and M. J. Rothstein.—p. 766.
Ninth Day Erythema Showing Photosensitivity. C. Berlin.—p. 771.
*Studies on Sensitivity to Sulfonamide Ointments. Helen R. Gottschalk and R. S. Weiss.—p. 775.
Suppurative Ringworm Contracted from Cattle. L. P. Fowle and Lucille K. Georg.—p. 780.
Acquired Loose Skin (Chalazoderma): Report of Case. R. G. Carney and R. Nomland.—p. 794.
Allergic Contact Dermatitis Due to Wool Fat and Cholesterol. F. A. Ellis.—p. 801.
Cutaneous Testing in Case of Exfoliative Dermatitis Caused by Penicillin. J. Farrington and J. Tamura.—p. 807.
Granular Cell Myoblastoma: Report of 2 Cases. A. C. Cipollaro and M. B. Einhorn.—p. 812.
Chemistry of Palmar Sweat: III. Reducing Substances (Glucose). W. C. Lobitz Jr. and A. E. Osterberg.—p. 819.
Id.: IV. Urea. W. C. Lobitz Jr. and A. E. Osterberg.—p. 827.
Extensive Trichophyton Purpureum Infection, with Nevoid Anomaly of Skin: Report of Case, Together with Mycologic and Physiologic Studies. R. L. Baer and E. Muskatblit.—p. 834.
*Kaposi's Varicelliform Eruption: Isolation of Virus of Herpes Simplex from Cutaneous Lesions of 3 Adults and 1 Infant. I. Ruchman, A. L. Welsh and Katharine Dodd.—p. 846.
*Ascorbic Acid in Treatment and Prevention of Poison Oak Dermatitis. D. H. Klasson.—p. 864.

Histoplasmosis.—Miller and his co-workers report a case of histoplasmosis in a man aged 37, a farm laborer, in whom an ulcer of the tongue developed. The diagnosis was established five months before his death by isolation of Histoplasma capsulatum in cultures of biopsy from the walls of the ulcer. There was histoplasmosis of the cervical and axillary lymph nodes with a possible terminal invasion of the blood stream by the parasite. Treatment with sulfadiazine, stibamine glucoside ("neostam," a pentavalent organic antimony preparation), penicillin and roentgen rays was of no value. There is no satisfactory treatment for a disseminated infection with H. capsulatum. The patient had coexistent Hodgkin's disease as indicated by the clinical course and by the discovery at necropsy of a malignant lymphoma, best classified as so-called Hodgkin's sarcoma, and disseminated miliary tuberculosis which probably caused his death. Biopsy of skin or of lymph nodes is the most successful method of diagnosis of histoplasmosis during life. Examination of blood smears, bone marrow and splenic pulp may be of value, but in all instances the diagnosis must be confirmed by isolation of the fungus in culture. In the authors' patient the histoplasmin, coccidioidin and haplosporangin tests gave equivocal results. The reaction to Napier's serum test was negative and to Wolff's precipitation test positive. A study of 88 cases of histoplasmosis reported in the literature reveals that cutaneous or mucomembranous lesions were present in 45 (about 50 per cent). H. capsulatum was observed in a large percentage of these cutaneous lesions, as it was in the authors' case. The sources of infection, the mode of transmission and the portals of entry of H. capsulatum are not known. More evidence is required before it can be definitely established that an infection with H. capsulatum ultimately leads to pulmonary calcification or that sensitivity to histoplasmin is associated with calcification in those with a negative reaction to tuberculosis.

Sensitivity to Sulfonamide Ointments.—Gottschalk and Weiss gave patch tests to a group of 223 volunteers with a 5 per cent sulfadiazine ointment (p_H of base, 7 to 7.5). Two hundred and ten volunteers had patch tests with a 5 per cent sulfathiazole ointment (p_H of base, 7 to 7.5). Two hundred volunteers had patch tests with a 5 per cent sulfadiazine ointment (p_H of base, 8.1). Of these volunteers 2.3 per cent were sensitized to the first sulfadiazine ointment, 0.49 per cent were sensitized to the sulfathiazole ointment, and none were sensitized to the second sulfadiazine ointment. In the patch test the material is applied only once, in only a small amount and to one area of the skin. The authors feel that epithelial sensitization may take place with greater facility when under actual conditions the sulfonamide drugs are used on previously inflamed skin and over larger areas of surface. They also believe that when the sulfonamide drugs are used on the skin for more than five days the probability of sensitization is greatly increased.

Varicelliform Eruption.—Ruchman and his co-workers report 4 cases of Kaposi's varicelliform eruption in 3 adults and in a 14 month old boy, all of whom had preexisting atopic dermatitis. The fact that 3 of the patients were adults appears of importance, as the disease is apparently much less common in adults than in children. One of the adult patients had a clinical relapse of the disease thirty-nine days after the first attack, and between these attacks, on the twenty-second day after the first episode, she had labial herpes. Each of the 4 patients had been in contact from five to ten days preceding the onset of Kaposi's varicelliform eruption with 1 or more persons who had labial herpes. The 3 adults had been successfully vaccinated at an earlier date. None of the 4 patients had any known exposure to vaccine virus preceding the development of Kaposi's varicelliform eruption. Penicillin, plasma and immune globulin failed to influence the course of the disease. A filtrable agent recovered from the cutaneous lesions of each of these 4 patients was shown by histologic methods and appropriate cross immunity tests in animals to be a strain of herpes simplex virus. An increase in antibodies during convalescence was demonstrated in 2 patients. In 1 fatal case in an adult there were no antibodies in the acute stage. These 4 cases add corroborative evidence to that already accumulated that Kaposi's varicelliform eruption may be produced by infection with herpes virus in persons having atopic dermatitis. The recovery of the herpes virus distinguishes this from eczema vaccinatum which is due to infection with the vaccine virus in persons having atopic dermatitis.

Ascorbic Acid in Poison Oak Dermatitis.—Klasson treated 126 patients having poison oak dermatitis with ascorbic acid. The average period of treatment was five days, the shortest two days and the longest ten days. The earlier treatment was initiated after exposure, the quicker and more favorable was the recovery. The ascorbic acid was given only to those patients who presented manifestations of moderately severe or severe disease. The dosage varied somewhat and depended on the severity of the dermatitis; it is felt that the maximum daily dose in any case is 600 mg. of ascorbic acid. The dose was divided into two or three portions given at intervals of four to six hours. The best route of injection seems to be the intramuscular one. When ascorbic acid is given orally, twice the amount that is employed by injection should be given. When vesiculation is present topical application of calamine lotion is recommended as a supportive measure. The first sign of improvement is a reduction in itching. This may come about two to four hours after the first injection but wears off in a few hours if no further ascorbic acid is given. In no instance were any inflammatory reactions noted. The best results are usually obtained in persons with symptoms of edema, as of the eyelids and genitals. It is felt that ascorbic acid is capable of combating the disease. Twenty-four men sensitive to the plant were employed as subjects in tests to determine prophylaxis against poison oak dermatitis. Through its physiologic action ascorbic acid has possibilities in preventing the contraction of poison oak dermatitis with daily doses from 150 to 300 mg. taken in tablet form in divided doses, one day prior to exposure, every day during exposure and at least twenty-four to forty-eight hours after exposure.

Archives of Otolaryngology, Chicago

46:735-874 (Dec.) 1947

Classification of Inflammations of Throat. P. Mangabeira-Albernaz. —p. 735.
Speech Hearing in Otosclerosis. M. S. Ersner and M. Saltzman. —p. 753.
Beta Hemolytic Streptococcus Parasitism in Infections of Upper Respiratory Tract. N. Fox.—p. 762.
Syndrome of Avellis: Review of Literature and Report of 1 Case. S. L. Fox and G. B. West Jr.—p. 773.
Escape of Cerebrospinal Fluid Into Wounds of Operations on Temporal Bone. H. I. Lillie and A. A. Spar.—p. 779.
*"Intocostrin"—"Pentothal Sodium" Anesthesia for Bronchoscopy and Laryngoscopy. P H. Lorhan and S. Roberts.—p. 789.
New Analgesic for Practice of Otolaryngology. N. L. Fineberg.—p. 792.
Functional Examination of Hearing. A. Lewy, S. L. Shapiro and N. Leshin.—p. 804.

Anesthesia for Bronchoscopy and Laryngoscopy.—Lorhan and Roberts point out that some observers have advised against the use of curare in bronchoscopy. They used the combination of "intocostrin" (a curare preparation) and "pentothal sodium" for laryngoscopy and bronchoscopy in 27 cases and feel that this combination has much to offer. In using "intocostrin" and "pentothal sodium" in combination, a minimal amount of each is required to produce the condition necessary for successful endoscopy. The authors obtained good relaxation in all but 1 of their 27 patients. Respiratory depression was encountered in 2 of the patients, the use of neostigmine becoming necessary in 1 of them, after which the patient's respiration improved. The procedure described should not be attempted unless the anesthesiologist is prepared to combat respiratory depression and institute artificial respiration immediately by means of a gas machine. One cubic centimeter of a 1:2,000 solution of neostigmine methylsulfate should be prepared and given if thought necessary. Oxygen should be given continuously to maintain a high oxygen concentration.

Archives of Surgery, Chicago

55:505-636 (Nov.) 1947

*Development of Artificial Kidney: Experimental and Clinical Experiences. G. Murray, E. Delorme and N. Thomas.—p. 505.
Medullary Tractotomy for Relief of Intractable Pain in Upper Levels. A. S. Crawford.—p. 523.
Acute Appendicitis: Analysis of 878 Cases at St. Luke's Hospital, Chicago. E. L. Strohl and F. E. Sarver.—p. 530.
*Experiences with Blalock Operation for Tetralogy of Fallot. F. D. Dodrill.—p. 539.
Anesthetic Mortality in Intrathoracic Surgery. H. Livingstone, G. Light, J. Coto and R. Engel.—p. 545.
*Ascorbic Acid, Thiamine, Riboflavin and Nicotinic Acid in Relation to Acute Burns in Man. C. C. Lund, S. M. Levenson, R. W. Green and others.—p. 557.
Aluminum Hydroxide and Magnesium Trisilicate Plus Mucin in Treatment of Peptic Ulcer: Gastroscopic and Clinical Studies. L. L. Hardt and L. P. Brodt.—p. 584.
Newer Aspects of Benign Tumors of Breast. M. M. Copeland.—p. 590.
Survey of Intestinal Obstruction. C. J. Baumgartner.—p. 607.
Pleuropulmonary Manifestations of Amebiasis. H. T. Langston and R. T. Fox.—p. 618.
Physiologic and Biochemical Alterations Incident to Surgical Intervention: Report of Case. W. H. Fishman and H. H. LeVeen. —p. 624.
Giant Sarcoma of Pleura: Report of Case. W. L. McNamara, W. F. Sargent and K. J. Costich.—p. 632.

Artificial Kidney.—Murray and co-workers point out that the principal aspects of the artificial kidney are: (1) a dialyzing membrane which is selective in allowing the passage from the blood stream of some substances and not of others, namely, nonprotein nitrogen and other toxic substances, (2) a method of circulating the blood through this extrinsic system and (3) protection from removal of necessary substances from the blood stream. After extensive trials and experiments the authors finally arrived at the present setup, which works satisfactorily both experimentally and in clinical patients. The authors describe the evolution of the machine, its use in animals and a clinical case in which cure followed the use of the artificial kidney. The membrane can be used to remove toxic substances from the blood. With proper buffering of the dialysate, there should be no injurious effects as a result of this process.

Blalock Operation for Tetralogy of Fallot.—Dodrill defines the Blalock operation as the anastomosis of one of the systemic arteries from the aortic arch to either the right or the left pulmonary artery. This may be done by either an end to side or an end to end method of suture. The operation is indicated in cases of congenital pulmonary stenosis or atresia of the pulmonary orifice. The diagnosis of pulmonary stenosis is made on the presence of cyanosis, clubbing of the fingers and toes, increased red blood cell count and the appearance of the heart in roentgenologic and fluoroscopic examination. The author reviews observations made in thirteen operations on 12 patients. In 5 patients the common carotid artery was used for the anastomosis, and in the remaining patients the subclavian artery. Results were excellent in 5 cases; the cyanosis disappeared, the red blood cell count became decidedly decreased, the clubbing of the fingers and toes receded or disappeared and the physical reserve of the patient was greatly improved. The arterial oxygen saturation has increased in all patients who survived the operation. Three of the patients died, usually soon after the operation. In those who survived there have been few complications. One patient, a boy aged 4½ years, deserves special mention, because he showed evidence of mental deficiency. He could not talk and acted as though he had no cerebrum. After the operation the nurses noticed that the child took interest in things about him. He pointed to the food he desired and he began to play with toys. He is now in a kindergarten school, but although there was decided improvement following the operation, the mental status is now apparently not progressively improving. Since the preparation of this paper, 11 additional patients have been operated on, with 1 fatality. This death was due, at least in part, to acute laryngotracheobronchitis.

Vitamin Metabolism After Burns.—Lund and his associates studied alterations in the plasma concentration of ascorbic acid and the urinary excretion of ascorbic acid, thiamine, riboflavin and N-methylnicotinamide in patients with burns admitted to the Boston City Hospital during 1944-1945. There were 4 children with minor burns and 2 children with severe burns, 11 adults with minor burns and 4 with extensive burns. After severe burns there were considerable alterations in the metabolism of ascorbic acid, thiamine, riboflavin and nicotinamide, as evidenced by a low concentration of ascorbic acid in the plasma either with the patient fasting or after saturation tests and low urinary excretion of these vitamins either with the patient fasting or after the injection of test doses. The extent of the abnormalities paralleled the severity of the burn. The changes were greatest in the early period following injury but continued in some cases far into the chronic stage. In this respect, the upset in vitamin metabolism parallels the upset in nitrogen metabolism which follows burns. The authors think that large doses of ascorbic acid, thiamine, riboflavin and nicotinamide are needed by severely burned patients and that some supplementation at a lower level is needed for many patients with burns of moderate extent. It is suggested that 1 to 2 Gm. of ascorbic acid, 10 to 20 mg. each of thiamine and riboflavin and 150 to 250 mg. of nicotinic acid be given daily to severely burned patients and that the doses may be needed for long periods. These vitamins alone will not satisfy the nutritional needs of the patient, which include a high protein, high carbohydrate diet and ample quantities of yeast, crude liver extract (given orally) and vitamins A and D.

Cancer Research, Baltimore

7:273-320 (May) 1947. Partial Index

Comparison of Carcinogenic Activity in Extracts of Human Liver and Other Human and Animal Organs. P. E. Steiner, W. Stanger and Miriam N. Bolyard.—p. 273.

Cancer Mortality Among Males and Females in Denmark, England and Switzerland. J. Clemmesen and T. Busk.—p. 281.

Immunologic Studies of Hydrocarbon Protein Conjugates: H. J. Creech, Evelyn L. Oginsky and F. S. Cheever.—p. 290.

Production of Reticulum Cell Sarcoma and Fibrosarcoma by Methylcholanthrene Adsorbed on Activated Carbon. J. G. McDonald.—p. 305.

Desoxycorticosterone Acetate, Mammary Gland Growth, and Carcinogenesis in Mice. L. A. Strait and K. B. DeOme.—p. 310.

Endocrinology, Springfield, Ill.

41:273-334 (Oct.) 1947. Partial Index

Attempts to Produce Deciduomata in Pregnant Rat. B. M. Peckham and R. R. Greene.—p. 273.

Relation of Thyroxine to Total Iodine in Thyroid Gland. J. Wolff and I. L. Chaikoff.—p. 295.

Effects of Steroids on Lactation. J. C. Barsantini and G. M. C. Masson.—p. 299.

Influence of Reproductive Stage on Fertility of Gonadotrophin Treated Female Rabbits. R. L. Murphree, E. J. Warwick, L. E. Casida and W. H. McShan.—p. 308.

Geriatrics, Minneapolis

2:325-384 (Nov.-Dec.) 1947

Endocrine Problems After Age of Forty-Five. W. O. Thompson.—p. 325.

*Chemotherapy of Urinary Tract Infections in the Elderly. W. L. Hewitt.—p. 334.

General Oxidative Processes with Relation to Degenerative Changes in Body. W. B. Kountz and Margaret Chieffi.—p. 344.

Care of Aged and of Chronic Sick in Great Britain. E. L. Sturdee.—p. 359.

Non-Profit Institutions Serving Aged in Philadelphia. W. R. Harrison.—p. 366.

Chemotherapy of Urinary Infections.—Hewitt stresses that necessary prerequisites for successful chemotherapy of infections of the urinary tract are a free flow of urine without obstruction, drainage of localized accumulations of exudate, absence of foreign bodies within the urinary tract or wounds with granulating surfaces communicating with the urinary tract, and renal function sufficient to secrete the chemotherapeutic agent in bactericidal concentrations in the urine. Mandelic acid has been largely supplanted by newer, more potent drugs. Sulfathiazole and sulfadiazine are effective against almost all the common bacterial pathogens isolated from the urinary tract. The use of sulfonamide mixtures is a possible method for reduction of renal complications. Penicillin is the most potent agent for the eradication of gram-positive cocci in the urinary tract, as well as for the treatment of metastatic suppurative complications arising in the urinary tract during infections with these bacteria. In the presence of mixed infection with gram-negative bacilli, combined treatment with sulfonamide compounds or streptomycin is indicated. Streptomycin is effective against most of the gram-negative bacilli. Resistent cultures of Pseudomonas aeruginosa and Streptococcus faecalis are an indication for increased dosage. Alkalinization of the urine is an important adjunct to streptomycin therapy.

Hawaii Medical Journal, Honolulu

7:96-188 (Nov.-Dec.) 1947

Tumors of Chest Lying Within or Adjacent to Mediastinum. J. E. Strode.—p. 109.

Mode of Action of Sulfonamides. M. Gerundo.—p. 118.

Modern Concepts in Treatment and Diagnosis of Fungous Infections of Skin. H. M. Johnson.—p. 122.

Journal of Clinical Endocrinology, Springfield, Ill.

7:729-780 (Nov.) 1947

Effect of Testosterone on Excretion of Glycogenic Corticoids. Eleanor H. Verning and J. S. L. Browne.—p. 729.

True Hermaphroditism: Endocrine Studies in Case of Ovotestis. J. C. Weed, A. Segaloff, W. B. Wiener and J. W. Douglas.—p. 741.

Comparative Study of Vaginal and Cervical Cornification in Human Subjects. J. E. Ayre, P. M. Chevalier and W. B. Ayre.—p. 749.

*Use of Hypertonic Saline Infusions in Differential Diagnosis of Diabetes Insipidus and Psychogenic Polydipsia. Anne C. Carter and J. Robbins.—p. 753.

Thiouracil in Treatment of Hyperthyroidism Complicating Pregnancy and Its Effect on Human Fetal Thyroid. M. J. Whitelaw.—p. 767.

Hypertonic Saline Infusions in Differential Diagnosis of Diabetes Insipidus.—Carter and Robbins present evidence to the effect that alterations of urine flow of hydrated subjects, following infusion of hypertonic saline solution, permit a differentiation between diabetes insipidus and psychogenic polydipsia and polyuria. Normal subjects and patients with polyuria and polydipsia were studied. All antidiuretic therapy was stopped for a period sufficient to permit the reappearance of polyuria and polydipsia. Fluids were withheld for eight hours preceding the test. The subjects were hydrated with water, 20 cc. per kilogram by mouth, over a period of one hour. Thirty minutes after the period of hydration was begun, an indwelling catheter was inserted. Specimens of urine were collected in fifteen minute periods and flow of urine was calculated in cubic centimeters per minute. After two control periods with an adequate flow of urine, i. e., greater than 5 cc. per minute, an infusion of 2.5 per cent sodium chloride was begun. The hypertonic saline solution was administered intravenously at the rate of 0.25 cc. per kilogram per minute for forty-five minutes. If no decrease in flow of urine occurred during the infusion or in the first two postinfusion periods (fifteen minutes each), 0.1 unit of "pitressin" N.N.R. was given intravenously and its effect on flow of urine observed. Nine healthy young adults showed a prompt decrease in flow of urine during the infusion or the first period thereafter. Two patients with moderate renal insufficiency showed a prompt reduction in flow of urine comparable to the normal subjects. Of 11 patients with polyuria and polydipsia without glycosuria 8 showed a continued diuresis during and after the infusion with a prompt reduction of flow of urine following the administration of "pitressin." These results provided objective support for the clinical impression that these patients had diabetes insipidus due to insufficiency of the neurohypophysis. Three of the subjects with polyuria and polydipsia showed the decrease in flow of urine characteristic of the normal subject. The psychogenic origin of their polydipsia and polyuria was confirmed by their subsequent freedom from symptoms without replacement therapy.

Journal of Experimental Medicine, New York

86:439-526 (Dec.) 1947

Stepwise Intratype Transformation of Pneumococcus from R to S by Way of Variant Intermediate in Capsular Polysaccharide Production. C. M. MacLeod and Marjorie R. Krauss.—p. 439.

*Preparation of Hemoglobin Solutions for Intravenous Infusion. P. B. *Hamilton, L. E. Farr, Alma Hiller and D. D. Van Slyke.—p. 455.*

Preparation of Dried Hemoglobin Without Loss of Activity. L. E. Farr, Alma Hiller and D. D. Van Slyke.—p. 465.

Renal Effects of Hemoglobin Infusions in Dogs in Hemorrhagic Shock. P. B. Hamilton, Alma Hiller and D. D. Van Slyke.—p. 477.

Studies on Sensitization of Animals with Simple Chemical Compounds: X. Antibodies Inducing Immediate-Type Skin Reactions. M. W. Chase.—p. 489.

Hemoglobin Solutions for Intravenous Infusion.—Hamilton and his associates point out that for infusion purposes hemoglobin solutions have advantages over whole blood in that the former do not need to be typed and cross matched and that longer preservation is possible. The authors describe work that was undertaken to provide a method whereby large volumes of hemoglobin solution could be prepared in a sterile state, free from stroma material, of electrolyte content approximating that of plasma and capable of preservation without change of the active hemoglobin to methemoglobin. It was found that large volumes of solution can be rapidly prepared, with 95 to 98 per cent of the hemoglobin in the active form capable of combining with oxygen. Solutions stored at 4 C. showed no conversion of hemoglobin to methemoglobin over a period of two and one-half months; over a six month period a small and variable amount of methemoglobin may be formed.

Journal of Immunology, Baltimore

57:301-407 (Dec.) 1947

Studies on Antigenicity, in Man, of Calcium Phosphate Adsorbed Influenza Virus; with Comments on Question of Dose of Virus Needed in Vaccines for Human Use. J. E. Salk.—p. 301.

Preparation of An Antigen Mixture from H. Pertussis by Selective Denaturation. J. H. Hink Jr. and F. F. Johnson.—p. 323.

Latent Mouse *Encephalomyelitis. J. L. Melnick and J. T. Riordan.*—p. 331.

Relative Effectiveness of Pure Penicillins Against Bacillus Anthracis in Vitro and In Vivo. R. D. Housewright, S. Berkman and R. J. Henry.—p. 343.

Induced Resistance to Streptomycin. E. Seligmann and M. Wassermann.—p. 351.

Estimation of Specific Antigen in Strains of Hemophilus Pertussis. J. Smolens, C. S. McLaren, D. S. McAleer and E. H. Flavell.—p. 361.

Specific Aggregation of Streptococcal Proteins Adsorbed on Oil Droplets: Serologic Behavior of Acid Precipitable Protein Fraction. D. A. Boroff and L. M. Tripp.—p. 369.

Chemotherapy of Virus Infections. W. C. Cutting, R. H. Dreisbach, R. M. Halpern and others.—p. 379.

Precipitin Testing and Its Three-Dimensional Expression. E. T. Bolton.—p. 391.

Studies of Capsular Substance of *Torula Histolytica* and Immunologic Properties of Torula Cells. A. M. Kligman.—p. 395.

Journal of Infectious Diseases, Chicago

81:197-290 (Nov.-Dec.) 1947

Influence of Biotin Deficiency on Course of Infection with Trypanosoma *Lewisi in Albino Rat. F. E. Caldwell and P. György.—p. 197.*

Studies on Hemoflagellates: III Specificity of Serologic Reactions of Leishmania Donovani, L. Brasiliensis, L. Tropica and Trypanosoma Cruzi. S. L. Chang and W. O. Negherbon.—p. 209.

Effect of Penicillin on Growth and Toxin Production by Enterotoxic Staphylococci. M. Segalove.—p. 228.

Distribution of Rodent-Adapted Strain of Poliomyelitis Virus in Cotton Rat. M. J. Sá-Fleitas.—p. 244.

Skin Reactions in Sensitized, Infected and Normal Rabbits with Filarial and Other Nematode Antigens. D. R. A. Wharton, C. Cuervo and A. W. Moyer.—p. 254.

Studies on Immunity to Asiatic Cholera: IV Excretion of Coproantibody in Experimental Enteric Cholera in Guinea Pig. W. Burrows, Marian E. Elliott and Isabelle Havens.—p. 261

Mechanisms of Infection in Rodent Poliomyelitis in Relation to Age and Portal of Entry. C. W. Jungeblut.—p. 282.

Journal of Lab. and Clinical Medicine, St. Louis

32:1437-1580 (Dec.) 1947

Colloidal Gold Containing Radioactive Isotope Au^{198} in Selective Internal Radiation Therapy of Diseases of Lymphoid System. C. W. Sheppard, J. P. B. Goodell and P. F. Hahn.—p. 1437.

*Direct Infiltration of Radioactive Isotopes as Means of Delivering Ionizing Radiation to Discrete Tissues. P. F. Hahn, J. P. B. Goodell, C. W. Sheppard and others.—p. 1442.

Metabolism of Women During Reproductive Cycle: XIV. Utilization of Pantothenic Acid During Lactation. Margaret N. Coryell, Mary E. Harris, S. Miller and others.—p. 1454.

Metabolism of Women During Reproductive Cycle: XV. Utilization of Biotin During Lactation. Margaret N. Coryell, Mary E. Harris, S. Miller and others.—p. 1462

Nutrition Survey of Viennese Civilians Under United States Occupation, 1945. C. S. Davidson, H. L. Wilcke, H. D. Fein and P. J. Reiner.—p. 1470.

Failure of Isolated Perfused Mammalian Heart to Destroy Renin and Angiotonin. W. J. Trautman Jr., W. D. Davis Jr. and T. Findley.—p. 1482.

Potassium Content of Normal Cerebrospinal Fluid. J. A. Helmsworth.—p. 1486.

Effects of Tetraethyl Ammonium Chloride on Mixed Type of Hypersensitive Carotid Sinus Syndrome. R. D. Taylor, L. C. Underwood and *I. H. Page.—p. 1491.*

*Aneurysms of Coronary Arteries Due to Polyarteritis Nodosa Occurring in Infant. Report of Case with Coronary Artery Thrombosis and Myocardial Infarction. C. M. Pickard, J. G. Owen and G. J. Dammin.—p. 1513.

Direct Infiltration of Radioactive Isotopes.—Hahn and his associates say that in attempts to radiate the lymphoid macrophage system, manganese dioxide sols were found to be gradually liberated, with evidence of secretion by way of the biliary tract. In the case of the gold sols, however, the radioactive material remained in the tissues in which it had been deposited (that is, chiefly the liver and the spleen) for as long as measurements could be made. It was determined whether the insolubility of gold colloids in body fluids could be used to advantage in direct infiltration of neoplastic tissue. Ordinarily the gold sols for intravenous administration were made up to contain 2 Vanderbilt units (V U.) per cubic centimeter. Such concentrations of radioactivity were usually found to be too low for infiltration work, because of the necessity of injecting relatively large volumes of solutions. Therefore the gold colloids were concentrated by boiling so that 5 or more units per cubic centimeter were obtained. The "Vanderbilt unit" represents about two thirds of a millicurie. A single "Radiation Unit" consisting of 16 mg. of gold foil, which has been exposed to a flux of slow neutrons, would have on an average about 120 V.U. at time of removal from the uranium pile. It has been found that approximately 40 V U. of Au^{198} administered by vein to an adult of average size may result in a remission in chronic lymphocytic leukemia. In cases of discrete encapsulated lesions, the colloid was administered in the same manner as would be employed for infiltration of a solution of procaine. After infiltration, frequent measurements were made. After describing observations on several clinical cases, the authors say that direct infiltration of insoluble radioactive colloidal sols of gold is apparently a suitable manner in which to deliver radiation to a discrete mass of tissue. Most of the subjects treated represented far advanced cases in which trial of materials whose correct dosage was unknown was felt justified. Usually the patient was grossly undertreated. In 1 patient with carcinoma of the vagina the tumor mass was such as not to hold injected fluid, and practically all of the radioactive colloid leaked out. Another approach to such problems would be the instillation of $Ag^{111}NO_3$, in which the caustic action offers hope of tying the agent to the tissue. The feasibility of use of $AgNO_3$ has been tested in experimental animals by using $Ag^{105,110}$ made by neutron capture in $AgNO_3$. The half-life is two hundred and twenty-five days and therefore not suitable for human studies.

Aneurysms of Coronary Arteries in Infant.—Pickard and his associates present the case of a girl who had been well till the age of 1 year, at which time, because of rash and fever, which was believed to represent erythema multiforme, she was hospitalized. The patient was discharged as improved on the seventeenth hospital day. Three months later she was readmitted because of dyspnea, orthopnea, anorexia and fatigue on slight exertion. The infant died several hours after admission. Necropsy revealed that the left coronary artery had a normal ostium but the lumen was narrowed to pinpoint size at the bifurcation. The anterior descending branch of the left coronary artery presented a fusiform enlargement. It measured 10 mm. in its greatest diameter. An adherent thrombus measuring 30 mm. and completely occluding the lumen was found in this branch of the left coronary artery. A portion of the thrombus occluded the circumflex branch at its origin. There were evidences of recent and remote infarction in the anterior portion of the interventricular septum and the anterior and apical portions of the left ventricle. Microscopically vascular changes representing healing and healed polyarteritis nodosa were observed.

Journal of Pediatrics, St. Louis

31:599-724 (Dec.) 1947

Changing Medical Care in Our Changing National Life. E. A. Park. —p. 599.
Adequacy of Artificial Feeding in Infancy. S S Stevenson.—p. 616.
Observations on Insect Borne Diseases in the South Pacific Campaign. P. Harper.—p. 631.
Wilms' Tumor (Embryoma of Kidney). H. K Silver.—p. 643.
*Oral Penicillin in Infants G. S. Husson —p 651.
*Oral Penicillin in Prophylaxis of Recurrent Rheumatic Fever. M. M. Maliner and S. D Amsterdam.—p 658
*Cerebral Abscess: Complication of Congenital Cardiac Disease (Fallot's Tetralogy): Report of 2 Cases with Diagnosis and Operation. A. Hand.—p. 662.
Peritonitis Associated with Neonatal Diarrhea. J. P. Doenges.—p. 669.

Oral Penicillin in Infants.—Husson gave penicillin, 20,000 units contained in 5 to 10 cc. of water and put in a formula bottle, to 22 infants between the ages of 1 week and 5 months and ranging in weight from 6 to 12 pounds (2,722 to 5,443 Gm.). The administration of the drug was followed by a regular feeding. Serum levels were determined one-half, one, three, four and six hours after ingestion of the penicillin. At one-half hour the average of six measurements was 0.880 unit per cubic centimeter. At one hour the average of twenty-two measurements was 0.584 unit per cubic centimeter. At two hours the average of ten measurements was 0.360 unit per cubic centimeter. At three hours the average of twenty-two measurements was 0.265 unit per cubic centimeter. At four hours the average of five measurements was 0.045 unit per cubic centimeter. At six hours no penicillin was found in the serum of the 5 infants tested. All the levels up to and including three hours after ingestion were therapeutically adequate. Gastric acidity, which according to other workers is an obstacle to the absorption of ingested penicillin, never reaches adult levels in children until the third year. This factor may account in part for the high penicillin levels obtained in almost all of the author's determinations. The relative inefficiency of the infant kidney may be another factor of considerable importance in the production of the high sustained serum concentrations of orally administered penicillin. A third factor is the possibility that there are fewer penicillinase-producing organisms in the infant gastrointestinal tract. Oral administration of penicillin would therefore seem to be a safe and practical method of treating infections in infants caused by the ordinarily penicillin-sensitive organism.

Oral Penicillin and Rheumatic Fever. — Maliner and Amsterdam report observations on 44 children between the ages of 1 to 13 years, with infection of the upper respiratory tract. Twenty-two children, 12 boys and 10 girls, received lozenges of 1,000 to 5,000 Oxford units of penicillin. The patients were advised to suck the troche slowly about one hour after each meal. Twenty-two children, 11 boys and 11 girls, were observed as controls without penicillin. None of the children receiving the penicillin prophylaxis showed signs of rheumatic activity, whereas 4 of 22 control patients presented definite attacks of rheumatic fever. The authors feel that their results are encouraging and warrant further detailed study which may definitely help to establish penicillin as the agent of choice in rheumatic fever prophylaxis.

Cerebral Abscess Complicating Fallot's Tetralogy.—Hand reports the occurrence of a large abscess in the left temporosphenoidal region, of a second abscess in the occipital lobe on the same side and of a similar focus of infection in the parietal lobe, associated with pulmonary stenosis, defect of the ventricular septum and hypertrophy of both ventricles in a boy 5½ years old who died two days after trephining of the left temporal region. Reports of 36 cases of congenital heart disease with abscess of the brain in the literature, when compared with the rather infrequent occurrence of congenital cardiac lesions in the average run of medical practice, justify the belief that these patients as a class have greater susceptibility to this complication than all the other medical groups of children, even those with otitis or with acquired cardiac lesions. This susceptibility should receive greater attention in textbooks and in courses in pediatrics, internal medicine, neurology and surgery. All patients in whom pulmonary stenosis, defect of the ventricular septum, coarction of the aorta or patent ductus arteriosus is definitely proved or even suspected should be examined by a surgeon especially trained in surgery of closure of a patent ductus or of anastomosis of the pulmonary artery with the aorta. The improvement in oxygenation following the operation of anastomosis undoubtedly favors improvement in general health even if it may not lessen the possibility of paradoxic embolism. The operation for occlusion of the patent ductus arteriosus might lessen the tendency to have acute endarteritis or endocarditis which these patients are likely to show even in adult life, but it will certainly remove the possibility of cerebral abscess by paradoxic embolism. It would therefore seem to be strongly indicated in these patients with patent ductus unless there is some equally strong contraindication.

Journal of Thoracic Surgery, St. Louis

16:587-722 (Dec.) 1947

Decortication in Chronic Empyema of Tuberculous Origin. F. B. Gurd. —p 587.
*Cavernostomy. E. J. O'Brien, P. V. O'Rourke, F. C. Test and E. F. Skinner.—p 602.
Cardiac Resuscitation. M. Fauteux.—p. 623.
Two Unusual Tumors of Sternum. T. J. Kinsella, S. M. White and R W Koucky.—p. 640.
Pulmonary Edema: Experimental Observations on Dogs Following Acute Peripheral Blood Loss. R. M. Eaton.—p. 668.
Pericardial Coelomic Cyst. L. J. Leahy and G. J. Culver.—p. 695.
*Removal of Foreign Bodies from Pericardium and Heart: Moving Picture Demonstration. D. E. Harken.—p. 701.
Use of Fluorescein to Demonstrate Effect of Artificial Respiration upon Circulation. S. A. Thompson, K. Lange and E. E. Rockey.—p. 710.

Cavernostomy.—O'Brien and his associates report on 43 patients with low cardiorespiratory reserve (group 1) with reduced function of the other lung which precluded collapse therapy or pulmonary resection. After cavernostomy, the disease in 13 is apparently arrested or improved; in 3 it is unimproved; in 5 the operation was too recent for classification; 20 are dead. Thirteen patients (group 2) had a residual cavity beneath a thoracoplasty collapse. In 6 of these the disease is apparently arrested, and in 1 it is improved; 1 was operated on too recently for classification and 3 are dead. Two others in this group had an incomplete operation and are unimproved. A large cavity of the lower lobe not closed by pneumothorax or phrenic paralysis or both was present in 8 patients (group 3). Five have arrested disease and 1 is unimproved. Drainage of the cavity was attempted but not achieved in 2 others; in 1 the disease is now apparently arrested and 1 is dead. Cavernostomy was done on 10 patients (group 4) with active or progressive tuberculosis and miscellaneous indications for surgical intervention. Five of these had previous unsuccessful Monaldi intercostal drainage which was converted to cavernostomy. Two patients are improved; 2 are unimproved, and

6 are dead. Most of the postoperative complications and deaths occurred in patients who before operation had visible dyspnea at rest, or active, progressive tuberculosis. Nearly 75 per cent of the deaths were attributable to these two factors.

Removal of Foreign Bodies from Heart.—Harken says that more than one half of the patients referred to the thoracic center at the 160th General Hospital, United States Army, in the European Theater of Operations as having foreign bodies "in the heart" were found not to have these missiles in the heart when careful fluoroscopic examination was done. Approximately one third of the missiles considered to be intracardiac were not found in the heart at surgical exploration. These two factors indicate that a foreign body cannot be conclusively diagnosed as intracardiac without surgical exploration or autopsy. Three operations are described in detail. The first was performed for the removal of a foreign body from an abscess in the pericardium and two operations were done for the removal of foreign bodies in chambers of the heart. These operations were taken from a series of operations in which one hundred and thirty-four missiles were removed from the mediastinum. Of these foreign bodies, fifty-five were pericardial and thirteen were in the chambers of the heart. Seventeen cardiotomies were performed. There were no deaths. Harken thinks that certain foreign bodies should be removed from the heart: (1) to prevent embolus of the foreign body or associated thrombus, (2) to reduce the danger of bacterial endocarditis, (3) to avoid recurrent pericardial effusions and (4) to reduce damage to the myocardium. Also pain and cardiac neurosis may be factors influencing the decision to remove some cardiac missiles.

Military Surgeon, Washington, D. C.

101:467-554 (Dec.) 1947. Partial Index

Management of Battle-Incurred Compound Fractures in Region of Hip Joint. M. R Urist.—p. 467.
Typhus on Western Front in World War II. H. A. Schulze.—p. 489.
Study of Military Prisoners at Disciplinary Barracks Suspected of Homosexual Activities. D. M. Wayne, M. Adams and Lillian A. Rowe.—p. 499.
Streptomycin: Its Value in Treating Sepsis Following a Cranioplasty Procedure: Case Report. T. A. Lamphier and C. Cashman.—p. 505.
Quality Control of Danish Milk Supply. R. L. Jimison.—p. 507.
Chronic Trench Foot—A Problem in Care of World War II Veterans. W. Redisch.—p. 509.

New England Journal of Medicine, Boston

237:795-828 (Nov. 27) 1947

Pathogenesis of Bronchiectasis. T. B. Mallory.—p. 795.
Amebiasis. J. H. Nicholson and F. A. De Dominicis.—p. 799.
Atypical Addison's Disease Associated with Diabetes Mellitus: Report of Case. D. K. Adler.—p. 805.
Further Observations on Occurrence of Streptococci of Groups Other Than A in Human Infection. G. E. Foley.—p. 809.
Practical Considerations of Venous Pressure. H. H. Hussey and H. Jeghers.—p. 812.
Nephrosclerosis.—p. 819.
Subacute Glomerulonephritis.—p. 822.

237:829-886 (Dec. 4) 1947

*Latent Rheumatic Myocarditis. J. Rogers and S. L. Robbins.—p. 829.
Use and Abuse of Chemotherapeutic and Antibiotic Agents. P. H. Long.—p. 837.
*Operative and Postoperative Management of Hypertensive Patients Undergoing Thoracolumbar Sympathectomy. J. W. Lord Jr. and J. W. Hinton.—p. 840.
Pneumoperitoneum Following Gastroscopy Apparently Without Perforation: Report of Case. D. T. Chamberlain.—p. 843.
Influenza. J. H. Dingle.—p. 845.
Carcinoma of Body of Pancreas. Pulmonary Embolism and Multiple Infarctions. —p. 875.
Carcinoma of Prostate, with Metastasis to Spine.—p. 878.

Latent Rheumatic Myocarditis.—Rogers and Robbins state that rheumatic fever, a systemic disease affecting chiefly the heart, has always been considered to be primarily a disorder of childhood. The fact that initial as well as recurrent acute attacks of rheumatic carditis occur in the later years of life is not so well known. The authors studied all cases of acute rheumatic myocarditis coming to necropsy at the Mallory Institute of Pathology of the Boston City Hospital from 1933 to 1946. In 20 of 41 pathologically proved cases of active rheumatic myocarditis the usual clinical manifestations of activity were sufficiently striking to result in a clinically correct diagnosis. Most of these patients were in the first two decades of life. The remaining 21 cases were not diagnosed as active rheumatic disease during the terminal illness; the most characteristic feature of this group was the age, which except in 5 cases was over 40 years. In 10 of these 21 patients a previous diagnosis of rheumatic heart disease had been made, and the terminal cardiac decompensation was considered to have been on a mechanical valvular basis without the complicating presence of myocarditis. In 7 more of the clinically undiagnosed cases no diagnosis of rheumatic disease had been made in the past, nor was it entertained during the terminal illness. In all but 1 case rheumatic manifestations were absent from this group, and the disease took a truly silent form. The 4 remaining patients represented subclinical acute rheumatic myocarditis occurring without associated pericardial or endocardial involvement. In these cases the diagnosis could hardly have been suspected clinically. The difficulty of clinical recognition of rheumatic activity in older patients can be attributed to several factors: in these age groups active carditis often assumes an atypical form; active rheumatic myocarditis as a cause of cardiac failure may be obscured by the presence of complicating diseases, such as hypertension, arteriosclerosis and healed rheumatic valvular disease, and in a certain number of cases the disease may be entirely silent.

Thoracolumbar Sympathectomy in Hypertension.—Lord and Hinton discuss principles of management during the operative and postoperative period that evolved as the result of their experience with 400 patients subjected to the two stage thoracolumbar sympathectomy during the past five years. The maintenance of a relatively stable pressure has been best achieved during the operation by the use of 2 cc. of a "solution neosynephrine hydrochloride, 1 per cent" in 1.000 cc. of 5 per cent dextrose in distilled water administered intravenously and, postoperatively, by the same fluid with 1 cc. of the drug per 1,000 cc. of solution until the systolic blood pressure has been stabilized at 90 or 100 or higher. This may take only a few hours or as long as forty-eight hours. The second major problem in these patients is to obtain hemostasis and to deal with the open thorax during the operation as well as to prevent serious hemothorax, pneumothorax, atelectasis and pneumonia postoperatively. The authors make use of the closed anesthetic system. Anesthetic agents included ether, cyclopropane and ethylene. When hemostasis has been obtained after the removal of the sympathetic chain and suture of the diaphragm, the wall of the chest is closed around a large rubber catheter placed in the pleural space. Air is completely aspirated, the catheter removed and the skin closed without drainage. Oxygen therapy is used in patients with low preoperative cardiac reserve. Digitalization of patients preoperatively is effected when evidence of actual or impending congestive heart failure is present, and the drug is continued after operation. Penicillin in liberal doses is given intramuscularly when the operation has been more difficult than usual or when the pleura has been widely torn, with potential trauma to the lung by retraction. Early ambulation is practiced only after the first stage sympathectomy. After the second operation patients are allowed up when the blood pressure has been stabilized and when the cerebral and cardiac functions are adequate. In a few patients who preoperatively had had either a stroke or a coronary occlusion, the authors have cautiously used subcutaneous heparin in Pitkin menstruum postoperatively.

237:887-930 (Dec. 11) 1947

*Late Effects of Total Gastrectomy in Man. R. M. MacDonald, F. J. Ingelfinger and Helen W. Belding.—p. 887.
Review of Some Recently Defined Virus Diseases. J. F. Enders.—p. 897.
Medical Care for People of Massachusetts: Contribution of Blue Shield. C. G. Hayden.—p. 901.
Rehabilitation of Employee Injured in Industry. A. P. Aitken.—p. 903.
Cutaneous Medicine. J. G. Downing.—p. 906.
Peptic Ulcer of Esophagus.—p. 919.
Ruptured Arteriosclerotic Aneurysm of Right Iliac Artery, with Retroperitoneal Hematoma.—p. 921.

Late Effects of Total Gastrectomy.—MacDonald and his associates studied intestinal motor function, intestinal absorption, pancreatic function and the blood picture in 3 patients who have survived total gastrectomy for three, five and ten years, respectively. All patients have a normal desire for food and become hungry. All are on an unrestricted, mixed diet, but take care that the food is well cut and well chewed. Occasionally, they experience borborygmi and mild cramps of the upper part of the abdomen after eating. The weight, although it increased after the operation, has never regained the levels existing before illness. Although it has been postulated that the secretion of pancreatic enzymes is greatly reduced after removal of the stomach, studies on pancreatic enzymes in these cases, however, yielded essentially normal figures except in case 2, in which total gastrectomy, splenectomy and partial pancreatectomy had been performed. This patient experienced difficulty in maintaining weight. Dilatation of the jejunum was present. Pancreatic enzymes were deficient, and the vitamin A tolerance curve flat. The glucose tolerance curve showed hyperglycemia, which was sustained. In the other patients, the vitamin A tolerance curves showed an apparently delayed but otherwise normal absorption of the vitamin. Glucose tolerance tests disclosed early and pronounced but transient hyperglycemia. Blood studies demonstrated that in 2 of the 3 patients a macrocytic, hyperchromic anemia developed two and five years respectively after operation. The other had received prophylactic treatment with liver. A review of the literature revealed a high incidence of macrocytic, hyperchromic anemia in patients surviving total gastrectomy for three or more years.

Ohio State Medical Journal, Columbus

43:1209-1304 (Dec.) 1947

Urinary Tract Infections. E A. Ockuly.—p. 1235.
"Spreading Factors" in Eczematous Processes. I. L. Schonberg.—p. 1240.
Studies in Human Inheritance: XXXI. Rh Factors and Congenital Malformations. L H. Snyder and H L. Reinhart.—p. 1243.
*Fatal Renal Disease in Carbon Tetrachloride Poisoning. G. Dorr Stobbe.—p. 1245
Program for Rehabilitation of the Hard of Hearing. N. A. Martin.—p. 1248.
*Mesantoin in Treatment of Epilepsy: Preliminary Report. J. L. Fetterman and M. D. Friedman.—p. 1251.
Keeping Up with Medicine. J Forman.—p. 1254.
Low Calcium and Mineral Oil Treatment of Poliomyelitis. B. C. Wiley.—p. 1255.

Fatal Renal Disease in Carbon Tetrachloride Poisoning.—Stobbe reports a case of carbon tetrachloride poisoning in a crane operator, in whom renal manifestations dominated the clinical picture. Two days before admission the patient had emptied two fire extinguishers containing carbon tetrachloride to stop a fire in the cab of the crane, and had stayed in the cab all day. The patient died on the twentieth hospital day. He was a diagnostic problem because on admission he seemed to have only acute glomerulonephritis. A few days later, the history of exposure to carbon tetrachloride, associated with oliguria, low specific gravity, hematuria, albuminuria and hypertension justified a diagnosis of nephrosis. It is postulated that the acute onset of headache, nausea and vomiting followed by the aforementioned syndrome was due to the production of phosgene gas Heart failure developed because of potassium intoxication resulting from renal damage. With intraperitoneal lavage the potassium level and the electrocardiogram returned to normal. The intraperitoneal lavage was discontinued because of fever, dyspnea and abdominal distention after Escherichia coli was cultured from the lavage fluid, suggesting peritonitis. Penicillin, streptomycin and sulfadiazine were given. Sulfonamide intoxication as shown by the high level of sulfadiazine in the blood and cutaneous eruptions was largely contributory to the final acidosis. Necropsy disclosed central necrosis and fatty metamorphosis of the liver, profound acute nephrosis with primarily epithelial lesions and slight peritonitis like that which might be caused by hypertonic solution of sodium chloride. The recovery of E. coli in culture was probably due to contamination.

"Mesantoin" in Epilepsy.—Fetterman and his co-workers treated 50 patients with epilepsy with 3-methyl-5,5-phenylethylhydantoin ("mesantoin"). Most of the adult patients received four to six tablets (0.4 to 0.6 Gm.) daily, but in some instances seven and eight tablets (0.7 to 0.8 Gm.) were given. Twelve patients obtained a remarkable reduction in the frequency of seizures and 17 were considerably improved; 8 have shown but slight to moderate improvement; in 10 patients the drug has not achieved any significant change in the condition thus far, and 3 patients are listed as total failures. "Mesantoin" has been relatively free of toxic side reactions. Many of the patients complained of drowsiness, but dextro-amphetamine sulfate proved useful in counteracting this lethargic effect. "Mesantoin," like diphenylhydantoin, is valuable for grand mal and jacksonian attacks and not for petit mal. It has proved more effective than phenobarbital alone and compares rather favorably with diphenylhydantoin sodium. Even if its anticonvulsant properties may be less than those of diphenylhydantoin, its side actions are milder and larger doses can be safely tolerated. Though "mesantoin" is effective alone, its major role in the authors' experience has been as a supplement to diphenylhydantoin sodium. The combined use of 0.3 Gm. diphenylhydantoin sodium and 0.2 Gm. to 0.6 Gm. of "mesantoin" daily gives the patient the sum of their anticonvulsant properties, while each neutralizes the side actions of the other, making this combination especially valuable in the control of grand mal seizures.

Public Health Reports, Washington, D. C.

62:1681-1708 (Nov. 28) 1947

Relationship Between per Capita Income and Mortality, in Cities of 100,000 or More Population. M. E. Altenderfer.—p. 1681.

62:1709-1728 (Dec. 5) 1947

*Roentgenographic Appearance of Persistent Pulmonary Infiltrates Associated with Sensitivity to Histoplasmin. M. L. Furcolow, H. L. Mantz and I. Lewis.—p. 1711.

Pulmonary Infiltrates and Sensitivity to Histoplasmin.—Furcolow and his associates point out that pulmonary calcifications, which were long assumed to be the end product of healed tuberculosis, are demonstrated roentgenologically rather frequently in persons with a negative tuberculin reaction. Although the view was advanced that this phenomenon represented simply the reversion to negative of a once positive tuberculin reaction, the demonstration of a strikingly uneven geographic distribution of these cases suggested that some disease other than tuberculosis was responsible. An indication that histoplasmin might be the responsible organism was furnished by Palmer, Christie and Peterson. Furcolow and his co-workers describe the roentgenologic characteristics of persistent pulmonary infiltrations found among persons who are sensitive to histoplasmin but not to tuberculin. Among 72 asymptomatic cases in school children in Kansas City, Mo., only a few of the lesions were limited to the lymph nodes, a few were of the disseminated type and approximately two thirds were nodular, sharply circumscribed foci. The remaining one fourth were diffuse patchy infiltrations with poorly defined borders, which sometimes developed into nodular lesions. Similar lesions were seen in a few patients whose symptoms appeared to arise from this infection. In some of the lesions a central core of calcification was noted. The lesions calcify slowly, and many infiltrations persisted without complete calcification during the two years of observation. The authors conclude that in regions where histoplasmin sensitivity is widespread pulmonary infiltrations as well as calcifications are frequently nontuberculous, and can be differentiated from tuberculosis at present only by cutaneous tests.

Review of Gastroenterology, New York

14:827-896 (Dec.) 1947

*Importance of Gastrointestinal Tract in Regulating White Corpuscles Under Physiologic and Pathologic Conditions. G. Boccuzzi and W. Paolino.—p. 839.
Lesions of Small Intestines. A. X. Rossien.—p. 850.
Case of Gallstone Ileus. D. A. Meiselas.—p. 857.
Adrenal Glands and Gastrointestinal Tract. P. De Muro and A. Ficari.—p. 860.
Scleroderma with Gastrointestinal Involvement. A. J. Brenner.—p. 869.
Preoperative Preparation and Postoperative Care in Anorectal Operations. A. L. Reich.—p. 873.

Gastrointestinal Tract in Regulating White Corpuscles.—Experiments by Boccuzzi and Paolino in 9 patients with pernicious anemia revealed that in the great majority of them, after a plain protein meal and after a meal of highly cooked liver, the digestive leukocytosis (with the exception of the leukopenic phase) was missing, while it was clearly evident if the meals still had in them the so-called antipernicious principles. Additional experimental research and clinical observations supported the concept of the participation of the gastrointestinal tract and above all of the stomach in regulating the hematic leukocytic picture as follows: There are constant and characteristic alterations of the white series in pernicious anemia *not secondary* to those of the red series; there is also stimulating action of the leukopoiesis by the gastric and liver extracts, not only in patients suffering from pernicious anemia but also in other leukopenias and in normal subjects. The digestive leukocytosis, often missing in processes which profoundly alter the gastric mucosa and digestive leukocytosis, may be reproduced in these cases by adding extracts of gastric mucosa to protein meals or by the ingestion of liver. In patients with carcinoma of the stomach leukocytosis is often missing and is substituted by leukopenia, which may be pronounced, particularly in cases of tumors involving the mucosa of the pyloric antrum. Leukopenia with relative lymphocytosis may be observed frequently in patients with various diseases, all of them associated with anatomic and functional alterations of the gastrointestinal tract, such as simple gastric achylia, essential hypochromic anemia, gastric resections and typhoid.

Southern Medical Journal, Birmingham, Ala.

40:965-1042 (Dec.) 1947

*Further Observations of Prothrombin Determinations and Vitamin K Therapy in Acute Coronary Occlusions. H. McG. Doles.—p. 965.
*Role of Autoagglutinins in Hemolytic Anemias. W. F. Renner and J. R. McShane.—p. 973.
Electrocoagulation of Congenital Sinuses, with Special Reference to Pilonidal Sinus. P Jacobson.—p. 980.
Intraventricular Hemorrhage: Some Experimental and Clinical Observations R K. Thompson, L. O. J. Mangariello and P. Nichols.—p 990.
Surgical Management of Infected Urachal Cysts. Case Associated with Neurologic Disease of Bladder. H. Brendler, P. B. Hudson and W. W. Scott.—p. 996.
Some Medicolegal Aspects of Traumatic Cataract. C. A Clapp.—p. 998.
Pigmented, Hairy and Warty Nevi and Their Relationship to Malignancy. E. F. Traub.—p. 1000.
Current Problems in Clinical Allergy. F. A. Simon.—p 1005.
Newer Treatment for Scabies: Supplementary Report. H. M. Robinson Jr. and H. M Robinson.—p 1010.
Indications for Hysterectomy in Benign Conditions Near Menopause. L. R. Wharton.—p. 1013.
Sickle Cell Anemia in Pregnancy. J. Carangelo and O. M. Otts Jr. —p. 1016.
Propylthiouracil in Pregnancy: Report of Case. L. Bain.—p. 1020.
Guillain-Barré Syndrome: Report of 2 Cases. M. Lang, J. E. Jacobs and W. M. Roberts.—p. 1021.
Some Observations on Etiologic Significance of Fluid in Pleural Spaces. H. T Engelhardt and J. L Wilson.—p. 1023.
Vegetable Juice in Cultivation of Pathogenic Micro-Organisms. A. Kimler, with technical assistance of Ila F. Scott.—p. 1026.

Acute Coronary Occlusions.—Doles treated 58 patients, 40 men and 18 women between the ages of 39 and 78 years with acute coronary occlusion, with vitamin K. The acute coronary occlusions in these patients were all associated with hypoprothrombinemia of various degrees; it was the basis for the rationale of this treatment. The amount of vitamin K usually given is from 50 to 72 mg. every six to eight hours by the intramuscular and intravenous routes until the prothrombin reaches 100 per cent of normal. The number of inadequately treated patients who died was 3. Two of the 55 adequately treated patients died; this gives a mortality rate among the latter of 3.6 per cent. In 53 patients the pain of acute coronary occlusion was controlled within twenty-four hours and a normal recovery followed. Fifty-two have been able to pursue their original occupations. Not any of these patients complain of pain or show any evidence of decompensation. The blood pressures have maintained the same level as before the attack. The prothrombin times average 98 per cent of normal. The fact that pain remained absent as long as the prothrombin was above 70 per cent of normal and that it was controlled after the administration of vitamin K emphasizes the concept of the relation of pain to hemorrhage within the wall of the coronary artery. Pain recurred when there was a return of hypoprothrombinemia. It is suggested that if routine prothrombin determinations are carried out on all patients, the detection of an early hypoprothrombinemia and the prompt use of vitamin K should be factors in reducing the incidence of acute coronary occlusion.

Autoagglutinins in Hemolytic Anemias.—Renner and McShane report the occurrence of hemolytic anemia in a white woman aged 71 in whom the autoagglutinins were demonstrated to be active at body temperature. Necropsy was performed and sections of the spleen showed masses of closely packed red blood cells undergoing destruction. Some of the blood vessels contained antemortem thrombi. These findings suggest that intravascular agglutination and destruction of red blood cells occurred in this patient. There are in the literature 8 additional cases of acquired hemolytic anemia associated with autoagglutinins active at body temperature. The association of autoagglutination, hemolytic anemia and multiple phlebothromboses in 18 cases of atypical pneumonia in the literature strongly suggests that intravascular agglutination does occur in vivo and is responsible for both the anemia and the thromboses. In the authors' concept autoagglutinins play a causative role in the pathogenesis of certain hemolytic anemias. The action of the autoagglutinins in destroying red blood cells is undoubtedly complemented by other factors: increased mechanical fragility of the clumped cells as suggested by Damashek, erythrostasis in the spleen and other portions of the reticuloendothelial system as suggested by Ham and Castle and the action of lysins elaborated in the body as suggested by Bergenhem and Fahraeus.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

55:625-676 (Dec.) 1947

Use of Radioactive Iodine in Study of Thyroid Function in Man. E. B. Astwood and M M. Stanley.—p. 625
*Periodic Paralysis in Patient with Exophthalmic Goiter Controlled by 6-Propylthiouracil L. Seed.—p 640
Manual Removal of Placenta. R W. DeVoe and A. B. Hunt.—p. 647.
Complications of Amebic Abscess of Liver. F. S. Foote.—p 651.
Hardy Method for Teaching Use of Contraceptive Diaphragm. Eva F. Dodge.—p 655.
Prophylactic Decompression of Small Bowel in Ventral Hernioplasty. E. T. Rulison.—p 659.

Periodic Paralysis in Exophthalmic Goiter.—According to Seed periodic paralysis occurs most commonly as a familial inherited trait but also occurs sporadically. The sporadic cases are found almost entirely in males and have a tendency to be associated with exophthalmic goiter. The disease is characterized by repeated attacks of flaccid paralysis commonly appearing after prolonged periods of rest, most frequently on waking in the morning. The author cites a man, aged 23, whose family history indicated a tendency toward goiter. About two months after he had been in a shipwreck, which, however, had not impaired his health, his shipmates observed that he was becoming "pop-eyed." About a month later he felt the first signs of weakness of the muscles. A few days later he had the first attack of complete paralysis; these spells continued to occur daily in various degrees for about three weeks. He was admitted to the Hines Hospital on April 9, 1946, and remained there until August 9. During this period his symptoms had lessened in severity. He believed that improvement began when he was given daily therapeutic doses of a vitamin B complex. He was placed on iodine medication and the basal metabolic rate dropped to plus 5 and zero and minus 6. From July 30 to August 9 he received 100 mg. of thiouracil daily. Improvement continued and he was discharged on August 9, free of symptoms. Medication was discontinued. In a few weeks he noticed some recurrence of symptoms and on October 2, awoke to find himself unable to use his arms, legs or trunk. In addition to his muscular weakness, he had the symptoms of a thyrotoxicosis. On October 24, he was placed on 25 mg. of propylthiouracil three times daily. His muscular weakness gradually became less severe. He had occasional spells of morning "numbness" but had no difficulty for the next three months while under continuous propylthiouracil medication. Long continued therapy may or may not produce a permanent cure.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

22:193-260 (Dec.) 1947

Some Clinical Aspects of Lactation. H. Waller.—p. 193.
Titratable Acidity, pH, Ammonia and Phosphates in Urines of Very Young Infants. R. A. McCance and M. A. von Finck.—p. 200.
Interrenal Syndrome in Childhood. E. C. Allibone, H. S. Baar and W. H. P. Cant.—p. 210.
Urinalysis in Dehydration Fever. J. Thomson.—p. 226.
Addis Count in Prognosis of Acute Nephritis in Childhood. Margaret D. Giles.—p. 232.

British Medical Journal, London

2:897-942 (Dec. 6) 1947

*Streptomycin and Tuberculous Meningitis in Children: Preliminary Note. R. Debré, E. Brissaud and H. Noufflard.—p. 897.
Tropical Lichen Planus Syndrome. W. Williams.—p. 901.
*Poliomyelitis: Second Attack. Mary W. Alves and I. Pugh.—p. 904.
*Tetralogy of Fallot and Its Surgical Treatment. G. Murray.—p. 905.
Complete Heart Block in Young People. J. R. H. Towers and C. Bremer.—p. 906.
Tonsillectomy and Adenoidectomy: Unsatisfactory Results Due to Chronic Maxillary Sinusitis. F. M. Walker.—p. 908.

Streptomycin in Tuberculous Meningitis.—Debré and his associates describe the investigation which is being carried out by a team of pediatricians, ophthalmologists, neurosurgeons, pathologists, bacteriologists and chemists at the Hôpital des Enfants Malades in Paris. Their preliminary conclusions are based on 70 cases. In the early stage of their investigation the authors stressed the following points: (1) employment of large doses of streptomycin, 100,000 to 200,000 units per kilogram of body weight per day; (2) administration of the drug by both the intraspinal and the systemic route, and (3) prolonged treatment. The treatment which they are now using comprises a phase of attack and of maintenance. The phase of attack consists of large doses: 100,000 units of the drug per kilogram per day by the parenteral route and at the same time two intraspinal injections per day of 50,000 to 100,000 units. This treatment is continued for about a week. In the second phase treatment is maintained at doses below 50,000 units per kilogram per day by means of parenteral injections alone. The authors attach the greatest importance to examinations of the fundus oculi and the cerebrospinal fluid. At present 46 children who have been undergoing treatment for from two to ten months are behaving like normal beings. The problem of when to stop the treatment is most difficult. Forewarned by early errors of the gravity of premature cessation of treatment, which was followed by fatal relapses, the authors have not yet dared to make the decision. They are treating the children continuously, as diabetic persons are treated with insulin. They have now decided not to discontinue treatment until they have the support of a large number of reassuring signs: absence of all clinical meningeal symptoms, an ascending weight curve, complete apyrexia, normal sedimentation rate and a spinal lymphocyte count below 10 at repeated examinations. They would add to this absence of tubercle bacilli in culture and, if possible, a normal quantity of cerebrospinal albumin.

Second Attack of Poliomyelitis.—Second attacks of poliomyelitis are not common. Alves and Pugh report that a girl, who had the first attack when she was 3½ years of age had a second when she was 12. The following factors were observed in both attacks: a fairly typical history in the presence of an epidemic; muscular paralysis and weakness, and changes in the cerebrospinal fluid, namely, increased cell count and raised protein content.

Tetralogy of Fallot.—Murray lists as the characteristic features of the syndrome of Fallot (1) stenosis of the pulmonary artery, (2) patent interventricular septum, (3) dextra position of the aorta and (4) hypertrophy of the right ventricle. There are many variations from these particular features. Most children with this condition die at birth or soon after. A few live to 6 or 7 years of age, even to 10 or 12. Occasionally one will survive to adult life. The patient suitable for surgical intervention is the child who has survived for perhaps a year or more and has limited exercise tolerance. The principle of the surgical treatment developed chiefly by Blalock and Taussig is to take a large branch from the aorta and anastomose it with the pulmonary artery so that more blood passes through the pulmonary circulation. The patient turns from blue to a satisfactory pink color. Since the operation is of considerable magnitude a mortality rate of 17 per cent as given by Blalock and Taussig is not surprising. Murray says that in his series of 60 cases of congenital heart disease with operation 40 were Fallot's tetralogy; 11 patent ductus arteriosus and 9 other types. The over-all mortality was 11.7 per cent and in the tetralogies 7.5 per cent.

Glasgow Medical Journal

28:349-396 (Nov.) 1947

Excretion of Corticosteroids: Determination of Total Free Reducing Ketosteroids in Urine. S. L. Tompsett and E. G. Oastler.—p. 349.
*Adrenal Hemorrhage in Monocytic Leukemia with Report of Fatal Case. J. R. Lauckner and F. J. Hebbert.—p. 366.
Milk Standards and Milk Safety: Critical Analysis in Relation to Glasgow's Milk Supply. M. S. Brooke.—p. 378.

Adrenal Hemorrhage in Monocytic Leukemia.—Lauckner and Hebbert report an abscess in the axilla and signs of anemia in a school girl, aged 11. The patient's condition was recognized as monocytic leukemia. The first transfusion of blood was followed by improvement, but in the course of the second transfusion circulatory failure quickly developed and the patient died. Necropsy revealed bilateral adrenal hemorrhage apparently precipitated by blood transfusion. The histologic features are described, and attention is drawn to the giant cells in the tissues. The nature of these cells is discussed. There is a paucity of reports of adrenal hemorrhage in leukemia, although this might be expected to occur not infrequently. Hemorrhagic reactions to blood transfusion are briefly reviewed.

Journal of Mental Sciences, London

93:483-708 (July) 1947. Partial Index

Effects of Intravenous Insulin in Sakel's Hypoglycemic Treatment. A. M. Spencer.—p. 483.
Emotional Interplay and Dominant Personalities in Therapeutic Groups: Observations on Combined Schizophrenic-Neurotic Groups. F. Kräupl—p. 613.
Obsessional States in Epileptics. G. Garmany.—p. 639.
Leptazol Therapy in Mental Disorders: Modification Using Sodium Amytal. P. M. Tow.—p. 644.

Journal of Pathology and Bacteriology, Edinburgh

59:359-518 (July) 1947

*Accidental Electrocution with Direct Shock to Brain Itself. W. E. C. Dickson.—p. 359.
Effect of Interaction of Staphylococcal Beta Toxin and Group B Streptococcal Substance on Red Blood Corpuscles and Its Use as Test for Identification of Streptococcus Agalactiae. E. Munch-Petersen and R. Christie.—p. 367.
Coagulase-Positive Staphylococci Resistant to Penicillin. Mary Barber.—p. 373.
*Inclusion Bodies (Protozoon-Like Cells) in Organs of Infants. D. F. Cappell and Marjory N. McFarlane.—p. 385.
Phloxin-Tartrazine Method as General Histologic Stain and for Demonstration of Inclusion Bodies. A. C. Lendrum.—p. 399.
Tropical Primary Phlebitis. A. C. Fisher, Monica M. Fisher and A. C. Lendrum.—p. 405.
Further Observations on Chemotherapy of Experimental Staphylococcal Infection in Mice with Drugs of Sulfonamide Group, Penicillin and Antitoxin. P. Browning and K. M. Calver.—p. 417.
Effects of β,β'-Dichlorodiethyl Methylamine Hydrochloride on Blood-Forming Tissues. G. R. Cameron, F. C. Courtice and Rosa P. Jones.—p. 425.
Myoepithelium in Certain Tumours of Breast. Rosemary Biggs.—p. 437.
Development of Resistance of Shigella Shigae to Glycine. J. Gordon and M. Gordon.—p. 445.
Essential Lesion of Pneumokoniosis in Welsh Coal Workers. A. G. Heppleston.—p. 453.
New Medium for Isolation and Identification of C. Diphtheriae Based on Production of Hydrogen Sulfide. G. F. W. Tinsdale.—p. 461.
Role of "Leukotaxine" in Production of Anhydremia of Burn Shock. H. Cullumbine, F. McDonald and M. M. Simpson.—p. 467.

Accidental Electrocution.—In the case reported by Dickson the area of immediate contact and point of entrance of the 240 volt alternating current was the right temporal pole of the brain, through a trephine opening in front of and slightly above the right ear. This opening had been made for a minor operation of the trigeminal nerve, and an electrically lit retractor had just been inserted when there was a sudden short circuit, the exact nature of which was not ascertained. There appeared to be no fault in the diathermy apparatus, and it was thought that the resistance in the transformer might have been momentarily defective. A nurse standing between the electric apparatus and the patient also received a shock, and, having her hand on the patient, presumably acted as the conductor of the current from patient to earth. The patient immediately became unconscious and remained so until next day, when both respiration and cardiac action stopped and she died twenty-one and one-fourth hours from the time of the accident. The most noteworthy change in the brain was a widespread disruptive process in both gray and white matter, believed to have been produced by the action of the electric current in liberating bubbles of steam and gas as a result of the intense heat and electrolytic action.

Inclusion Bodies in Organs of Infants.—In the examination of the organs of 2 infants dead from hemolytic disease of the newborn Cappell and McFarlane observed in many tissues giant cells with cytoplasmic and intranuclear inclusion bodies. The affected cells conform to those previously described as protozoon-like, and the lesions are identical morphologically with those attributed to the action of the salivary gland virus of rodents and other animals. By analogy with the experimental transmission of the salivary gland virus in animals, it is suggested that the widespread lesions of infants are probably due to dissemination of a human strain of salivary gland virus. Isoimmunization of the mothers by any of the known blood group antigens carried by the fetus has been excluded in both cases.

Lancet, London

2:817-856 (Dec. 6) 1947

Teachers of Medicine. F. M. R. Walshe.—p. 817.
*Personality Change After Prefrontal Leukotomy. L. Frankl and W. Mayer-Gross.—p. 820.
Therapeutic Abortion by Means of Soft-Soap Pastes. H. H. F. Barns. —p. 825.
*Viability of Treponema Pallidum. C. E. Lumsden.—p. 827.
Intrabronchial Penicillin for Lung Abscess. E. Rosenthal.—p. 829.
Easy Technic for Intravenous Cannulisation. A. Clain.—p. 830.
Glandular Enlargement in Adults: Review of 9 Cases. H. M. R. Jones.—p. 830.

Personality Change After Leukotomy.—Frankl and Mayer-Gross studied patients who were discharged to their homes after having been subjected to leukotomy. Of 170 patients operated on 77 were discharged, but 9 of these had to be readmitted after being home from two to twenty months. Fifty-one of the patients had had long standing schizophrenia of the catatonic and paranoid types; 9 were obsessional neurosis, 7 melancholia and 1 recurrent mania. Eight patients could be interviewed, the others had to be followed-up by letter. More than half of the 68 patients (a fifth of the total), who without the operation would have been hopeless chronic invalids, earn their living, and more than three-quarters are usefully employed. The patient's working capacity and attitude toward work, interests and hobbies, social, family and sex life are described. The patient is physically healthy, a good eater and sleeper, with considerable euphoria. His prevailing mood is cheerfulness; he does not worry but is happy and contented. He has a high opinion of himself. He may take his responsibilities too easily or may shirk them altogether. He is restless and likes movement and change. His interests and hobbies are varied and variable, with a preference for light entertainment and superficial pastimes. His relations with the persons near him are often without depth of feeling. He shows little sympathy or consideration for his next of kin or anybody else. He neither regrets nor repents for whatever he may have done or said. He may be self willed, headstrong and unable to see the other person's point of view. He tends to quickly passing outbursts of temper. He may attend to his work as before or may do less well, but he invariably thinks he does well. Symptoms of the former psychosis, delusions, hallucinations, obsessional ideas and rituals seemed to be insignificant.

Viability of Treponema Pallidum.—During the war Lumsden received capillary tube samples from venereal sores from isolated units, after they had been in transit for four or five days. The question often arose as to the reliability of this procedure. He decided to investigate the viability of T. pallidum in preparations made from fresh untreated lesions. In 10 consecutive cases of typical hunterian chancre of the penis in which he had just found T. pallidum on dark field examination, he made several preparations which were examined subsequently at intervals. In cases in which the tubes were stored in an incubator at 37 C. (98.6 F.), T. pallidum remained viable at least six days (in 1 case ten days). When the tubes were stored at a room temperature of 5 to 18 C. (41 to 64.4 F.) the organisms remained viable ten and thirteen days. In one instance, in which the tube was not properly sealed, spirochetes could not be identified on the tenth day. In 8 additional instances the original slide preparations in which T. pallidum had been identified were sealed with soft paraffin and stored either at room temperature or in an incubator at 37 C. In each case T. pallidum was viable for eight to fourteen days. The author thinks that it is perhaps not sufficiently appreciated that T. pallidum is fairly viable outside the human body. In human necropsy material kept in the refrigerator the spirochetes have been found motile after forty-eight hours. Enormous numbers of T. pallidum may be present in, for instance, macerated fetuses, suggesting that T. pallidum can multiply in dead tissue under anaerobic conditions. Accidental infections, though rare, undoubtedly can and do take place in the necropsy room and in the laboratory.

Acta Medica Scandinavica, Stockholm

129:113-212 (Nov. 5) 1947

Changes in Organism Resulting from Insufficient Gas Exchange: II. Influence of Tissue Extract, Cozymase, Adenosine Triphosphoric Acid and Bicarbonate on Respiration in Hepatic Tissue Impaired by Insufficient Gas Exchange. H. Colldahl.—p. 113.
Myocardial Affection in Malaria Tertiana. C. A. Hernberg.—p. 132.
In What Part of Intestinal Canal Is Fish Tapeworm Found? Questionnaire: Diphyllobothrium Latum and Pernicious Anemia. IX. B. von Bonsdorff.—p. 142.
Acute Glomerulonephritis. F. Klein.—p. 156.
*Treatment of Hyperthyroidism with Methylthiouracil: Results of Prolonged Therapy. A. R. Frisk.—p. 164.
*Experiments with Formaldehyde-Treated Poliomyelitis Virus Vaccines. S. Gard and O. Lindholm.—p. 184.
Treatment of Bronchial Asthma with Antihistaminic Preparation ("Antergan") by Control of Histamine Level of Blood. T. Strengers, J. C. M. Verschure and A. C. M. Lips.—p. 193.
Granulocytopenic and Lymphocytopenic Hypersplenia Associated with Atrophic Arthritis. H. Levy.—p. 203.

Methylthiouracil in Hyperthyroidism.—Frisk says that at his hospital treatment with derivatives of thiouracil has been employed for over three years. He analyzes results in 126 of 145 patients who have been continuously treated with methylthiouracil or allied compounds for more than two months. Forty-four per cent of the patients were free from symptoms within one month and 72 per cent within two months. The rest of the patients showed a slow response. Of previously untreated patients, those with palpable enlargement of the thyroid reacted most satisfactorily. Iodine therapy immediately prior to treatment with methylthiouracil delays the therapeutic result. Toxic adenomas responded slowly to this treatment. It was possible to maintain the patients in a state of remission by small daily doses of the drug. Enlargement of the thyroid gland is common during prolonged treatment. There is often a hypercholesterinemia. In one fifth of the patients the elevation in the serum cholesterol level was considerable and persisted for one to thirteen months. Eleven patients were submitted to thyroidectomy. In 7 instances treatment was discontinued for various reasons. With a treatment time of less than six months the recurrence frequency was about 50 per cent; with a time of over six months the frequency was around 10 per cent. Toxic reactions were observed in 11.6 per cent of patients. Leukopenia with a white blood cell count of less than 3,000 developed in 7 patients; in 4 it appeared during thiouracil therapy and in 3 during treatment with methylthiouracil. One of these patients had agranulocytosis. All of them recovered.

Formaldehyde-Treated Poliomyelitis Virus Vaccines.—Gard and Lindholm present a preliminary report on partially purified inactivated poliomyelitis virus as an immunizing agent. The purpose of the experiments was to produce in mice a serologic immunity sufficient to afford reasonable protection against invasion of the virus from the periphery. Subcutaneous injection of partially purified and inactivated virus of poliomyelitis gives rise in mice to increased resistance against subsequent intraperitoneal infection with active virus. Protection against more than 10,000 lethal doses can be obtained. Formaldehyde in excess causes loss of the immunizing capacity of the vaccine. The safety range of concentration of formaldehyde between complete inactivation of the virus and partial destruction of the antigenicity is extremely narrow. The variation as to the minimum concentration necessary for inactivation is considerable and is dependent on the amount of formaldehyde-fixing impurities present in the virus preparations. For large scale production of vaccine a standard procedure and standard purity tests must be applied. Such methods have still to be elaborated.

Klinische Wochenschrift, Heidelberg

24/25:609-640 (July 15) 1947. Partial Index

Normal and Pathologic Histology of Adrenals of Infants: Contribution to Morphologic Analysis of Function of Adrenal Cortex. F. Erbslöh.—p. 622.
*Clinical Significance of Thyroid Symptoms in Diabetes Mellitus. E. Schulze and R. Franke.—p. 625.
Syndrome of Wolff, Parkinson and White in Light of Evaluation of Accidents. W. Hahn.—p. 629.
Impairment of Liver Caused by Large Doses of Quinacrine. A. Kahlstorf.—p. 632.

Thyroid Symptoms in Diabetes Mellitus.—Schulze and Franke observed among 223 patients who were under treatment and supervision on account of diabetes mellitus, 28 or 12.5 per cent who had more or less pronounced signs of involvement of the thyroid. In 6 patients hyperthyroidism was primary and the diabetes secondary, whereas in 22 the diabetes mellitus preceded the onset of the thyroid symptoms. The frequent occurrence of goiter in diabetes mellitus is the result of an increased thyrotropic action of the anterior lobe of the hypophysis, which in turn is caused by the abolishment of the restraining action of the insulin. The high incidence of ocular symptoms of the exophthalmic type, combined with Graefe's sign, indicates that the hypophysis is the decisive organ. Other symptoms with illustrative case histories discussed by the authors are circulatory symptoms, changes in the metabolic rate, tremor and moist skin. They also stress that in untreated cases of diabetes mellitus a positive reaction to the acetonitrile test (Reid-Hunt's reaction) is frequently apparent, but it becomes noticeably weaker after treatment with insulin. This indicates that insulin normalizes the function of the thyroid in patients with diabetes mellitus.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

91:3193-3268 (Nov. 8) 1947

*Determination of Carbon Monoxide in Small Quantities of Blood by Means of Palladium Chloride. C. L. Harders.—p. 3194.
Treatment of Oxyuriasis. D. P. R. Keizer.—p. 3202.
*Diphtheria: Serum Therapy and Mortality. A. J. H. van Spanje.—p. 3206.
Reaction of Fuchs in Early Stage of Cancer and Blood Groups. H. Caspary.—p. 3212.
Epidemic of Scabies in the Netherlands. R. D. G. P. Simons and F. J. Doornink.—p. 3215.

Determinations of Carbon Monoxide in Blood.—Harders shows that the presence of carbon monoxide can be determined in small quantities of blood with sufficient accuracy by means of the reduction of palladium chloride in the diffusion apparatus of Lips. The precipitated palladium is collected, brought into solution and determined colorimetrically in a concentrated solution of potassium iodide.

Mortality in Diphtheria.—Observations in over 300 cases of diphtheria convinced van Spanje that the promptness with which serum therapy is employed has a decisive influence on the mortality rate. It increases greatly when the administration of serum is delayed. To wait the result of the bacterial examination may involve a threat to the life of the patient. Serum should be administered as soon as diphtheria is suspected.

Pediatria de las Américas, México, D. F.

5:513-576 (Nov.) 1947. Partial Index

*Fallot's Tetralogy and Eisenmenger's Complex. J. Meneses Hoyos.—p. 563.

Fallot's Tetralogy and Eisenmenger's Complex.—Meneses Hoyos discusses the differential diagnosis of Fallot's tetralogy and Eisenmenger's complex. He reports 2 cases of Fallot's tetralogy in infants in whom Blalock's operation was indicated.

Presse Médicale, Paris

55:801-812 (Nov. 29) 1947

*Lessons Learned from Campaign of Skin Reaction to Tuberculin in French Army (1934-1947). R. Debénédetti.—p. 801.
Treatment of Diabetic Coma. J. Stahl and D. Kuhlmann.—p. 802.

Skin Reaction to Tuberculin in French Army.— Debénédetti reports on tuberculin cutaneous reaction in 100,000 soldiers of the French army during the period of 1934 to 1946. Approximately 50 per cent of young Frenchmen inducted into the army presented a negative reaction, and a considerable number were still negative in reaction when they concluded their service. The percentage of negative cutaneous reaction was greater among the soldiers who came from rural areas than among those from cities, but there were differences in the percentage of negative reaction among soldiers from various rural areas of France. The conversion of the cutaneous reaction from negative to positive among the soldiers belonging to a certain regiment nearly always occurred in the absence of any clinical manifestation, while the tuberculous morbidity among soldiers with a negative cutaneous reaction surpassed that among soldiers with a positive reaction. Allergy does not develop in the absence of infection, while contamination may occur in the absence of allergy: Koch's bacillus may enter the organism but fail to become fixed or to multiply. It is also possible that a young soldier has become infected and allergic and that he has lost his sensibility to tuberculin, perhaps without losing his immunity. These results show that BCG vaccination of soldiers on a large scale is justified. The unanimous vote of the French Academy of Medicine calls for this type of prophylaxis.

55:821-832 (Dec. 6) 1947

Diagnosis of Silicosis Based on Pulmonary Tissues from Exhumed Bodies. A. Policard.—p. 821.
*Rational Bases of Medical Endobronchial Treatment of Pulmonary Abscess. M. Fourestier and Y. Le Boucher.—p. 822.
Case of Fetal Erythroblastosis Due to Agglutinogen B. R. Heffinck.—p. 823.

Medical Endobronchial Treatment of Pulmonary Abscess.—Fourestier and Le Boucher applied medicinal endobronchial treatment to 10 patients with pulmonary abscess. Immediately after the diagnosis of pulmonary abscess was established the first exploratory bronchoscopy was carried out in order to confirm the exact area of localization and at the same time to remove some of the purulent secretion for bacteriologic examination. Depending on the result of the bacteriologic tests, 400,000 units of penicillin alone (in patients with gram-positive bacteria) or combined with 1 Gm. of a soluble sulfonamide compound (in cases with mixed gram-positive and gram-negative bacteria), was instilled with a catheter by the endobronchial route three times a week for one to two months. This local treatment is essential but must be combined with general treatment for about one month, with a daily dose of 1,000,000 units of penicillin alone by the intramuscular route (in those with gram-positive bacterial growth) or combined with 5 Gm. of a sulfonamide compound given either parenterally or by mouth (in those with gram-negative bacterial growth). Bronchoscopic examination was repeated several times during the treatment. Expectoration often continued even though the endobronchial material no longer revealed any significant bacterial growth. In such cases treatment may be completed with daily injections of 0.5 mg. or more of atropine for ten to fourteen days, to dry up bronchial glandular reflex hypersecretion. All 10 patients made a complete recovery.

Progresso Medico, Naples

3:589-620 (Oct. 31) 1947. Partial Index

*Vitamin K in Therapy of Essential Hypertension. A. Morelli and P. Salvi.—p. 611.

Vitamin K in Therapy of Essential Hypertension.—Morelli and Salvi found that (1) the formation of cholinesterases is increased in the blood serum of patients with essential hypertension and that (2) the intravenous injection of a solution containing 10 mg. of synthetic vitamin K (menadione, 2-methyl-1,4 naphthoquinone) diminishes both hypertension and the formation of cholinesterases in the blood serum of patients. The authors believe that essential hypertension is due to an imbalance of the autonomic nervous system with sympathetic predominance and that vitamin K stimulates the tonus of the autonomic nervous system and reestablishes its balance.

Schweizerische Medizinische Wochenschrift, Basel

77:1219-1242 (Nov. 22) 1947. **Partial Index**

Diagnosis and Therapy of Genital Tuberculosis in Women. E. Glatthaar.—p. 1219.
Tumors of the Parotid Gland. R. Montant and R. Sarasin.—p. 1223.
Action of Urethane on Tissue Cultures. O. Bucher.—p. 1229.
*Changes in White Blood Cell Picture in Diphtheria. A. Baumgartner.—p. 1230.
Presacral Anesthesia in Obstetrics and Gynecology. Z. Kubes.—p. 1232.
*Simple Method for Prolonging Action of Penicillin. E. Carlinfanti and F. Morra.—p. 1235.

White Blood Cell Picture During Diphtheria.—The observations described by Baumgartner are based on 100 cases of diphtheria which included 21 cases which were toxic and malignant, 30 moderately severe, 31 mild and 18 carriers. He found differences in the leukocytic reaction depending on whether a mixed infection existed (diphtheria bacilli accompanied by streptococci or staphylococci) or whether the diphtheria bacilli were the only pathogenic organisms. The eosinophils and basophils do not disappear in the blood picture of pure diphtheria until the fifth day. Monocytosis exists frequently but lymphocytosis rarely. The mature neutrophils decrease in percentage in accordance with the severity of the toxic manifestations and increase again as the toxicosis subsides. In severe cases the neutrophils always show toxic granulation. The appearance of many immature neutrophils and the decrease in mature neutrophils and a simultaneous increase in leukocytes to over 10,000 is always a dangerous sign, since in such instances there usually developed myocarditis, paralysis and other toxic signs. Two cases of malignant diphtheria with fatal outcome revealed the same picture. Mild forms of diphtheria may manifest a mild leukocytosis, a slight increase in cells with segmented nuclei and a slightly increased deviation to the left, or the blood picture may be normal. Mixed infections exhibit at once the neutrophilic combat phase; eosinophils usually disappear and the lymphocytes decrease, the mature neutrophils predominate and the total leukocyte count increases. Even the mixed infections, however, show the stamp of diphtheric toxicosis. The white blood cell picture is of prognostic value, provided that the type of infection, whether mixed or pure, is taken into consideration.

Prolongation of Action of Penicillin.—Carlinfanti and Morra retard the absorption and prolong the action of penicillin by injecting it subcutaneously and then retarding the venous and lymphatic circulation by the exertion of slight pressure on the part in which the injection is made (thigh or arm) by means of a rubber cuff or band. The pressure must be slightly less than the minimum arterial pressure so as not to make the patient uncomfortable. The constricting band should remain in place for only from one to five hours, depending on the quantity of penicillin injected (10,000 or 100,000 units). This method makes it possible to reduce the number of injections to three a day or to five in forty-eight hours.

Semaine des Hôpitaux de Paris

23:2595-2632 (Nov. 21) 1947

*Treatment of Bronchopulmonary Suppurations with Instillations of Penicillin Controlled by Laryngoscope and Fluorescent Screen. H. Bénard, P. Rambert and C. Coury.—p. 2595.
Attempt of Classification of Primary Intrathoracic Tumors: Incidence—Anatomico-Clinical Peculiarities. M. Bariéty and C. Coury.—p. 2602.
*Folic Acid in Treatment of Anemias. P. Rambert.—p. 2614.

Instillations of Penicillin in Bronchopulmonary Suppurations.—Bénard and his co-workers treated 9 patients with acute or subacute chronic bronchopulmonary abscess by endobronchial instillations of penicillin under pharyngolaryngeal and tracheobronchial local anesthesia with tetracaine hydrochloride. One hundred thousand to 500,000 units of penicillin was instilled in 10 to 20 cc. of isotonic solution of sodium chloride with or without epinephrine and atropine by means of an opaque rubber catheter under control of the fluorescent screen but without bronchoscope. These instillations were first repeated daily, then every two days, and later weekly, or every two weeks. Patients with chronic abscess associated with sclerosis for a duration of twenty months received up to 8,400,000 units of penicillin in forty-two instillations over a period of three months. Complete clinical and anatomic recovery, as demonstrated on roentgenologic examination, resulted in 8 patients; in only 1 patient intolerance of the anesthesia occurred before any endobronchial procedure and prevented the instillation of the penicillin. Complete recovery resulted from this treatment in 36 of an additional 40 cases of bronchopulmonary abscess cited in the literature. This treatment is indicated in cases of recent or chronic abscess of the lung, whether associated with putrefaction or not and in failure of any other route of administration of penicillin. The 90 per cent rate of recovery is considerably higher than that obtained with parenteral administration of penicillin and that with penicillin aerosol therapy. It is not a substitute for surgical treatment but may serve as a useful preoperative treatment in cases in which definite improvement cannot be demonstrated on roentgenologic examination after a course of two to three weeks.

Folic Acid in Treatment of Anemias.—According to Rambert, the satisfactory results obtained by Spies with folic acid in the treatment of macrocytic anemia in the United States have been confirmed in France. This applies exclusively to the hyperchromic anemias associated with medullary megaloblastosis and chiefly to Biermer's disease. A daily dose of 20 mg. of folic acid by mouth has been employed by the author, but 10 mg. seems to be the optimum dose. Increase in appetite and in weight resulted after the first two or three days of treatment, which may be continued for ten to thirteen days. Even high doses up to 400 mg. have been well tolerated. There was a pronounced drop in the iron content of the blood serum and an increase in reticulocytes, red blood cells and white blood cells. Repeated sternal punctures revealed the progressive disappearance of the megaloblasts within a few days. A definite recovery from pernicious anemia cannot be obtained with one course of folic acid treatment. A normal hematologic state resulted from maintenance treatment with folic acid for ten to twenty months in 23 of 25 patients with pernicious anemia. In 1 patient with nutritional macrocytic anemia associated with sprue and with diarrhea of several years' duration, feces were restored to normal on the fourth day of treatment with folic acid. Folic acid by mouth failed in 1 patient with macrocytic anemia in whom calf liver extract was effective. A second course of folic acid treatment failed in another patient who had a remission as a result of the first course of this treatment and in whom calf liver extract remained effective. In spite of the hematologic improvement obtained with folic acid, the drug does not have any effect on the neurologic syndrome associated with pernicious anemia, which is to be considered as a disorder of complex deficiency while folic acid has an exclusive effect on the erythrocytic maturation. Folic acid treatment of pernicious anemia should therefore be combined from time to time with treatment with liver extract.

Semana Médica, Buenos Aires

54:915-944 (Dec. 4) 1947. **Partial Index**

*Particular Exanthem in Psittacosis. A. Averbach and J. Ink.—p. 931.

Exanthem in Psittacosis.—The 1946 epidemic of psittacosis in Buenos Aires, although restricted to certain suburbs in the city, was so highly contagious that frequently 7 of 8 persons living in the same house were ill almost simultaneously. A diagnosis of psittacosis was made because of the fact that the epidemic started from contact of some of the patients with a parrot which died of avian psittacosis, and the clinical symptoms and course of the disease were those of psittacosis. The disease ran a course of atypical pneumonitis, which was benefited by the administration of penicillin. An exanthem not previously described in psittacosis was encountered in all cases in this epidemic. It consisted of an eruption of more or less thick pearl-colored spots, either minute or between 2 and 4 mm. in diameter. The skin at the back of the neck was either normal or slightly red. The exanthem appeared early in the course of the disease and persisted for twenty or forty days. Five cases are reported.

Book Notices

Synopsis of Neuropsychiatry. By Lowell S. Selling, M.D., Ph.D., Dr.P.H., Director, Division of Mental Health, Florida Department of Health, Jacksonville, Florida. Second edition. Fabrikoid. Price, $6.50. Pp. 561, with 27 illustrations. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1947.

This volume, according to its preface, is intended for general practitioners and medical students. For these purposes its size, compactness, brevity and outlined presentation meet the self imposed requirements. However, in the attempt to cover the broad fields of neurology and psychiatry, sketchiness and incompleteness render its reference and study values below par. For example, the student who is continuously plagued by examinations which demand definitions will find that the patient with poliomyelitis may have a stiff neck but will look in vain for "Foerster's sign." He will learn that the ninth cranial nerve supplies the parotid gland, but under the seventh will find no mention of the nerve supply to the submaxillary and sublingual glands. The otherwise excellent differential diagnosis under infantile paralysis makes no mention of Guillain-Barré's polyradiculoneuritis. In the section on treatment of epilepsy there is nothing on the production of acidosis by such agents as racemic-glutamic acid, diets rich in protein and fat, exercise and drugs such as ammonium chloride. The contemporary thought that the reticular formation, through its projected reticulospinal tract, is responsible for extensor posture in man is conspicuous by its absence.

Omissions in the psychiatric portion of the text are more apparent than those in the neurologic section. No mention is made of the associations and psychiatric syndromes usually linked with the endocrines and the vitamins. While morphine, cocaine, diacetylmorphine and marihuana poisoning is described, bromidism is omitted. Nowhere can be found a section devoted to personality and personality testing (Berneuter, Minnesota multiphasic, Rorschach and the like). Of the various schools of psychodynamics, only Freud and Adler, with a dozen lines dismissing Meyer, are mentioned. Constitutionalism, Kempf, Bleuler, Jung and other schools are lacking, although Janet, as the representative of French psychologic thinking, is grudgingly allotted one word over four lines. Under psychotherapy, nothing is said of prefrontal lobotomy, vitamin treatment, the geriatric approach to the mental disorders of old age or such therapeutic adjuvants as dramatics and music.

The illustrations and the diagrams are excellent, as are the various tables. The succinctness and orderly progression of the subjects make the text an easily read one. Physicians may find it quite serviceable as a handy reference, while students will be able to use it as a review for examinations.

Le chirurgien en présence de l'etat diabétique. Par Jacques Bréhant. Préface du Professeur Sénèque. Paper. Price, 1,200 francs. Pp. 543, with 44 illustrations. Masson & C^{ie}, 120 Boulevard Saint-Germain, Paris 6^{e}, 1946.

No comparable book in diabetic surgery has appeared in any other language. The first section covers what the surgeon should know about diabetes, gives general principles of medical treatment, the preparation of a patient with diabetes for surgery, anesthesia and a general discussion of conditions amenable to surgical intervention. In the next part the surgical complications of diabetes are discussed, first from a general point of view and then in detail, taking up infections of the skin, gangrene, ocular complications and miscellaneous surgical conditions. In the third section there is a discussion of surgical types of diabetes such as the infections of the pancreas, the hypophysis, the thyroid and the adrenals together with a discussion of surgery of the biliary tract and in fact the whole gastrointestinal tract in young and old patients. In the fourth section the author discusses those conditions in which surgical intervention in an organ related to diabetes might be undertaken in order to affect the diabetic state. The fifth section relates to diabetes in pregnancy and the sixth, to diabetes in relation to trauma.

The book is carefully conceived and well written, with excellent illustrations. Résumés at the end of each chapter are admirably compiled. Furthermore, there is a delightful quotation from one diabetic author or another at the beginning of the chapters which shows the widespread reading by the author.

With such a beautiful book, there is but one criticism; namely, that the author is not conversant with what has gone on in diabetes during the last four or five years. He is so capable and so well versed in his subject that unhesitatingly one of the larger foundations or a group of surgeons individually or in one of their associations should persuade him to come to this country and spend one or two months in visiting the larger diabetic clinics. His point of view and his criticism of the new work done here for patients with diabetes would be invaluable, and then the second edition of his book would be of such a standard that every surgeon interested in diabetic surgery should possess it.

Common Skin Diseases. By A. C. Roxburgh, M.A., M.D., B.Ch. Eighth edition. Fabrikoid. Price, 21s. Pp. 497, with 220 illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W. C. 1, 1947.

The eighth edition of Roxburgh's popular book is, like the previous editions, a clearly written, practical presentation of the subject. It is a personal book reflecting the author's experience in practice rather than a compilation of the abstracts from the literature. The scope is limited to the more commonly encountered diseases of the skin, and emphasis is given to differential diagnosis and treatment, although some of the drugs recommended will be unfamiliar to American readers. It includes a thorough consideration of the antibiotics, particularly penicillin, and it considers also such new developments in dermatology, as the role of DDT for certain parasitic diseases and calciferol for lupus vulgaris. A number of new illustrations have been added, all of which are clear and well selected. The print is large and on good stock. This book warrants the good reception afforded the previous editions.

Ear, Nose and Throat: Symptoms—Diagnosis—Treatment. By George D. *Wolf, M.D., Assistant Clinical Professor of Otolaryngology*, New York Medical College, New York. Fabrikoid. Price, $10. Pp. 523, with 149 illustrations. J. B. Lippincott Co., 227-231 S. Sixth St., Philadelphia 5. 1947.

This work on the ear, nose and throat differs from the usual text in that it approaches its topic from the point of view primarily of symptoms, diagnosis and treatment. As the dust cover states: "Typical complaints by the patient, rather than diseases, are used as topical bases for discussion."

The idea is sound and has been tried previously and with considerable success, especially in Germany. For those for whom it was written, notably students, practitioners, interns and residents, the book offers considerable material in concise form. An idea of what the author has attempted may be gained by reading the first chapter, which concerns itself with ear, nose and throat emergencies. One finds here discussion of the various hemorrhages encountered in this region and of the foreign bodies seen in this area as well as adequate comment on such topics as tracheotomy and cocaine poisoning. In a similar fashion other chapters deal with head pain, vertigo, sore throat, earache, hoarseness and so on.

Although the text concerns itself primarily with symptoms, diagnosis and treatment, it was found necessary to add anatomic details and properly so where these are necessary to clarify understanding.

Knowledge of pathologic facts is also just as necessary for a proper understanding of symptoms, diagnosis and treatment. Here the text seems regrettably brief, a price paid no doubt of necessity by the manner of organization of the text. There are other unbalances which will, it is hoped, be corrected in a future edition, for this work is worthy and plainly fills a need.

A Synopsis of Orthopædic Surgery. By A. David Le Vay, M.S., F.R.C.S. Fabrikoid. Price, 15s. Pp. 242, *with 55 illustrations*. H. K. Lewis & Co., Ltd., 136 Gower St., London, W. C. 1, 1947.

This book is a fair synopsis of orthopedic surgery and covers most of the problems as well as they could be covered in a synopsis. It is intended for senior undergraduates, but there seems to be material missing which would be useful to medical students. In some instances the dissertations are a bit lengthy.

Often there is too much emphasis on some subjects and not enough on others; for instance, too much discussion about ruptured disks with little about the other causes of backache. In general the book could be used as a lecture guide for students if it were integrated with the proper references to other books. It would be more valuable if there were a complete bibliography covering references to all conditions mentioned in the book. It is unfortunate that a book of this type has practically no reference to other than British authors.

The Internal Fixation of Fractures. By Charles Scott Venable, M.D., F.A.C.S., and Walter Goodloe Stuck, M.D., M.S., F.A.C.S. With a foreword by Ralph K. Ghormley, M.D., F.A.C.S., Professor, Orthopedic Surgery, Mayo Foundation, Rochester, Minnesota. Cloth. Price, $5.50. Pp. 237, with 84 illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Illinois, 1947.

This comprehensive handbook on the subject of internal fixation consists of chapters presenting a review of the historical data, the investigative work on the use of metals in surgery, evaluations of the various types of metals, the technic of internal fixation as applied to fractures of the upper and lower extremities and, lastly, a recognition of necessary standards and improvements of materials used.

The historical chapter on the early uses of metal appliances and the reasons for the unfortunate results is interesting and instructive, since it lays the foundation for the rather belated investigative and experimental work which led to the recognition in 1934 that interference with healing and the deterioration of the metals used in internal fixation was due to electrolysis, except when infection was a factor. The recognition of this fact led the authors and other investigators to search for metals that were inert in the body tissues.

They emphasized the importance of the surgeon's knowing the type of stainless steel that is to be used, since there are some twenty-five or thirty standard industrial grades that are used, due to the variation in the amount of one alloy or another. The most desirable one at this time is 18-8 SMO stainless steel. They maintain, however, that "vitallium" is the most inert substance in use for internal fixation. Many other metals are discussed and evaluated with respect to their adaptability to internal fixation.

A conservative attitude has been taken toward open reduction. Surgery is advocated only after closed reduction has failed, when internal fixation offers the advantages of accurate approximation and possibly earlier healing and reduction of disability. Technics, indications and pitfalls are concisely discussed. The importance of atraumatic surgical approach is emphasized. The authors believe that internal fixation does not play an important role in damaging the blood supply in fractures of the neck of the femur, whereas inadequate reduction and holding of the reduction is probably more responsible for aseptic necrosis in this type of fracture. They stress the fact that faulty technic and errors in judgment have a direct relation to poor results, also the importance of the necessary armamentarium and skill one must have to perform such surgery.

This book is well illustrated, has an exhaustive bibliography and should form a splendid guide to the fracture surgeon in the use of internal fixation.

An Introduction to Bacteriological Chemistry. By C. G. Anderson, Ph.D., Dip. Bact. Second edition. Cloth. Price, $5. Pp. 500, with 12 illustrations. William Wood & Co., Mount Royal and Guilford Aves., Baltimore 2, 1946.

The first edition of this book appeared in 1938 as a textbook for students and those not primarily interested in the biochemistry of micro-organisms. The approach and method of treatment has not been altered, but the book has been enlarged by about 20 per cent to include sections on chemotherapy and antibiotics, together with miscellaneous new material scattered throughout. The book still fails, however, to include a discussion of disinfection, a curious lack in view of its basic importance to chemotherapy. The treatment of immunity is somewhat more superficial than might be expected and covers little more than the material given the medical student at the present time. Although in no sense sufficiently comprehensive to serve as a reference book, this volume will be of interest to those who desire a summary of the present state of knowledge of the chemistry of bacteria.

A Short Handbook of Practical Anæsthetics. By Höel Parry-Price, M.R.C.S., L.R.C.P., D.A. With a foreword by Cecil P. G. Wakeley, C.B., Consulting Surgeon to the Royal Navy. Cloth. Price, $3. Pp. 127, with 50 illustrations. [Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2]; John Wright and Sons, Ltd., Gaunt House, 28 Orchard St., Bristol 1, England, 1946.

This small volume is a curious combination which appears to consist of the author's opinions and conclusions based on personal experience and memory of past reading. There are no references or other acceptable support appended. One example, among many, of careless writing is a statement on page 80 that John Snow used "carbon dioxide absorption" about 1887, whereas Snow had been dead nearly thirty years at that time. Perhaps the author explains his book when he says in the preface that "It is written only as an account of practical experiences gleaned by one who has found in anaesthetics more a hobby than a profession." The result is scarcely safe reading for students or inexperienced anesthetists. On the other hand, the vivid descriptions and definite views, as well as the stress on the humanitarian aspect of the specialty, will make Dr. Parry-Price's book valuable and diverting to many readers. The following gem quoted from page 25 is very characteristic:

"Probably the sensations under gas are more pleasant than under any other anaesthetic. Much appears to happen in a short time. One patient vividly described his sensations. He said: 'I took some deep breaths and found myself going down a long dark tunnel. I came out the other end and found myself in a lovely Devon lane. There was beautiful sunshine and a smell of hay and honeysuckle. I found myself with a wonderful maiden, and stopped in a gateway. I had just got both arms around her neck when a voice said "Now spit." ' "

Aspects pathologiques du fond de l'œil dans les affections de la rétine. Par Gabriel Renard, professeur agrégé à la Faculté de médecine de Paris, Paris. Atlas ophtalmoscopique, I. Rapport présenté à la Société française d'ophtalmologie le 21 mai 1946. Paper. Price, 1000 francs. Pp. 170, with illustrations. Masson & C^ie^, 120 Boulevard Saint-Germain, Paris 6^e^, 1946.

From 1936 to 1940 the French Society of Ophthalmology sponsored the publication of a series of excellent ophthalmologic monographs prepared by its members. It is a pleasure to welcome the reappearance of this series. The ophthalmic atlas number 1 is up to prewar standard in printing and illustrations. The author has selected a number of retinal conditions for complete study and has not attempted to cover the entire ground of ophthalmoscopy. In doing so, he has been able to correlate well the clinical findings with the ophthalmoscopic and histopathologic studies that are pertinent and profitable to the reader.

The Ship's Medicine Chest and First Aid at Sea. Completely revised as a joint project of the United States Public Health Service and the War Shipping Administration. Miscellaneous Publication No. 9. Cloth. Pp. 498, with 134 illustrations. Supt. of Doc., Government Printing Office, Washington 25, D. C., 1947.

This is a book for people on ships without doctors. It has been revised many times since it was first developed in 1881. It contains a lot of useful information, with some help in diagnosing common infectious diseases as well as those that appear in the tropics, and it supplies the minimum of necessary knowledge regarding treatment. Special sections deal with sending medical advice by radio, birth and death at sea, medical relief of merchant seamen and the rules regarding the quarantine and control of narcotics. It must be tough to be a sailor sick on a ship where there is no doctor, even with this book to help.

An Introduction to Personal Hygiene. By Laurence B. Chenoweth. Cloth. Price, $2.50. Pp. 345, with 80 illustrations. F. S. Crofts & Co., Inc., 101 Fifth Ave., New York 3, 1947.

This textbook for college students is competent and constructed along new lines. An introductory chapter reviews the history of hygiene and sanitation; then comes consideration of the development of the human body, nutrition, the glands, the mind, mental hygiene and finally disease and the promotion of health. An excellent glossary makes easy the acquiring of enough medical vocabulary. Presumably the student who follows this course will have had some previous education in chemistry, philosophy and at least biology. The illustrations are for the most part unimportant and badly reproduced.

Probleme des Selbstmordes. Von Dr. Med. Fritz Schwarz, Professor für gerichtliche Medizin an der Universität Zürich. Paper. Price, 9.80 Swiss francs. Pp. 128, with 21 illustrations. [Distributed in U. S. by Grune & Stratton, Inc., 381 Fourth Ave., New York 16.] Hans Huber, den Marktgasse 9, Bern 16, 1946.

This monograph deals largely with certain statistical, medicolegal and sociologic aspects of suicide in Europe and particularly in Switzerland between 1900 and 1940. A wealth of case material available to the author in his capacity of professor of legal medicine at the University of Zurich is the principal basis of his discussion of the extrinsic and intrinsic factors that predispose to self destruction and of the various methods employed for its accomplishment. The book has been prepared for readers whose interest in the subject is broad and superficial rather than for the sociologist, the psychiatrist or the medicolegal expert in search of detailed and specialized information.

Public Baths and Health in England, 16th-18th Century. By Charles F. Mullett. Supplements to the Bulletin of the History of Medicine, No. 5. Paper. Price, $1.50. Pp. 85. Baltimore: The Johns Hopkins Press, 1946.

The student of physical medicine as well as the medical historian will be repaid by reading this informative and at times highly diverting monograph on the relationship between health in England and the development of English spas during some two hundred years between the sixteenth and eighteenth centuries. The author has presented his subject in the form of a bibliographic essay, the preparation of which required a critical review of 470 references. Of these, 414 appeared in popular or technical publications between the years 1660 and 1880. Such a mass of literature shows the interest which the therapeutic use of "waters" and bathing excited in England during that period.

By drawing on this font of contemporary literature the author has succeeded in presenting an excellent picture of the conduct and uses of the various well known English baths of that day. Furthermore, he has furnished an interesting account of the way of life as well as the opinions and beliefs, both lay and medical, on matters of health and bathing that obtained during that period in England. The frequent introduction of amusing anecdotes and quaint observations enlivens an essay that represents extensive thoughtful research and is an instructive contribution to the literature of balneology.

DeLee's Obstetrics for Nurses. By M. Edward Davis, M.D., Professor of Obstetrics and Gynecology, University of Chicago, Chicago, and Mabel C. Carmon, R.N., Chief Supervisor and Instructor in the Birthrooms of the Chicago Lying-In Hospital and Dispensary, Chicago. Fourteenth edition. Cloth. Price, $3.50. Pp. 640, with 338 illustrations. W. B. Saunders Co., West Washington Square, Philadelphia 5; 7 Grape St., Shaftesbury Ave., London W. C. 2, 1947.

This work has been so polished by revision that it is wellnigh perfect. Among the especially commendable features are the excellent photographs of deliveries which were obtained from motion picture films, the superb colored plates and the judicious use of antique pictures of obstetric procedures in earlier centuries. The style of the volume is well calculated to hold the interest of student nurses, yet the contents fulfil the requirement of the graduate nurse concerned with minutiae of technic. Each chapter is followed by questions for review, which serve to remind the lazy reader of the important points in the text. A handy glossary, printed on green paper for convenience, is appended, and the index is adequate. As might be anticipated, the book emphasizes only the methods used at the Chicago Lying-In Hospital, but these methods are so sound that few will take exception to them. The volume is recommended to all nurses, undergraduate, graduate or supervising, who manage obstetric patients.

Advances in Pediatrics. Volume II. Editorial Board: S. Z. Levine, Cornell University Medical College, New York, Allan M. Butler, Harvard Medical School, Boston, L. Emmett Holt, Jr., New York University, College of Medicine, New York, and A. Ashley Weech, University of Cincinnati, College of Medicine, Cincinnati. Cloth. Price, $6.75. Pp. 409, with illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, 1947.

This volume considers fluorine in dental caries, virus diarrhea, atypical pneumonia, chemotherapy and rheumatic fever. The book is designed to help pediatricians to keep abreast of current advances in the subjects concerned.

Psychiatric Research: Papers Read at the Dedication of the Laboratory for Biochemical Research, McLean Hospital, Waverley, Mass., May 17, 1946. By Cecil K. Drinker and others. Harvard University Monographs in Medicine and Public Health, Number 9. Cloth. Price, $2. Pp. 113, with 7 illustrations. Harvard University Press, Cambridge 38, Mass.: Oxford University Press, Amen House, Warwick Sq., London, E. C. 4, 1947.

Six papers read by distinguished scientists at the dedication of the laboratory for biochemical research at McLean Hospital, Waverley, Mass., are presented in this small book. Dr. Drinker of Harvard University reviews the history of research at the McLean Hospital, a history made meaningful by such names as Folin, who undertook biochemical investigations in mental disease at the beginning of the century. Dr. Folch's paper on Biochemical Problems Related to Psychiatry is a masterly and fascinating survey of brain function as studied by the biochemist. Stanley Cobb contributes a report on progress in the integration of medical and psychiatric problems. Dr. H. S. Gasse, director of the Rockefeller Institute for Medical Research, presents a scholarly paper on the language of science. A paper on Psychical Seizures by Dr. Wilder Penfield, director of the Montreal Neurological Institute, and discussion of the Psychobiology of Psychiatric Research by Dr. Strecker complete this remarkable collection. This small volume offers in compact form meaty reading that should have the attention of every psychiatrist and every student of behavior.

Science Advances. By J. B. S. Haldane. Cloth. Price, $3. Pp. 253. The Macmillan Company, 60 Fifth Ave., New York 11, 1947.

The majority of the essays included in this book have appeared in British scientific publications. The author admits that he is a Marxist, and he is convinced that Marxism is the best application of the scientific method to the widest field so far achieved by man. Many of his essays appeared in the *Daily Worker*. Professor Haldane writes exceedingly well. When he is writing on any subject other than Marx and his political doctrines or Russia, which is one of his great admirations, he is well worth reading.

L'électro-choc et la psycho-physiologie. Par Jean Delay, professeur agrégé à la Faculté de médecine, Paris. Paper. Price, 230 francs. Pp. 171. Masson & Cie., 120 Boulevard Saint-Germain, Paris, 6e, 1946.

This is an important and much needed discussion of electric shock in its therapeutic and theoretic aspects. The author is one of the outstanding research men in France today, and has done considerable work in this field. He discusses the epileptic attacks under electric shock treatment in a descriptive and dynamic sense. Of particular significance is his consideration of the effect on diencephalic function as it influences humoral changes. This study does not limit itself to the physiologic and biochemical side but also considers the effects of shock on consciousness and the mental functions. It is an extremely valuable book for all persons using this technic.

Advances in Internal Medicine. Volume II. Editors: William Dock, M.D., Long Island College of Medicine, Brooklyn, N. Y., and I. Snapper, M.D., the Mount Sinai Hospital, New York, N. Y. Associate editors: Tinsley R. Harrison, M.D., Southwestern Medical College, Dallas, Texas and others. Cloth. Price, $9.50. Pp. 642, with illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, 1947.

This book is essentially a collection of articles on problems of current interest in medicine. Among the subjects covered are hypertension, the Rh factor, the uses of penicillin and nutritional requirements in disease. For those who wish to be brought up-to-date in these fields, the book may be well recommended because of its authoritative character.

The Proceedings of the Charaka Club. Volume XI. Boards. Price, $7. Pp. 243. Published for the Charaka Club by Richard R. Smith, 120 East 39th St., New York 16, 1947.

Essays here collected include contributions from such distinguished writers as Fred B. Lund, Edward L. Keyes and Peyton Rous. The biographies of Casey Wood, Walter Ralph Steiner, William Osler Abbott and Bernard Sachs are reminiscent of these great American physicians. The eleven volumes of essays included in the transactions of the Charaka Club are a part of American medical history. As one reads the list of members in 1946, one wonders how the present membership is building for the future.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

MULTIPLE SCLEROSIS

To the Editor:—Since chemotherapy and the antibiotics have come into such a wide range of usefulness, have any of these agents been of benefit in the treatment of multiple sclerosis? The patient is a young married woman, a primipara, aged 27. Her child is over 2 years of age. The patient's first symptoms occurred a year ago, with numbness on the left side of the face, disturbance of vision and nystagmus. Later she had motor disturbances, scanning speech, paraplegia, dysuria and numbness in various parts of the body. These attacks last about three or four weeks and recur in some form about every eight or ten weeks.

W. G. Shallcross, M.D., Pittsburgh.

ANSWER.—Chemotherapy and the use of antibiotics have not been shown to be of value in the treatment of multiple sclerosis. As no specific treatment of the disease is known, the chief features of the present day care consists of morale building as a means of dealing effectively with anxiety, the prevention of the precipitating factors, rehabilitation and symptomatic relief. Factors leading to relapses are now thought to be infections, unfavorable climate, pregnancy, fatigue, poor nutrition, emotional disturbances and chilling. In rehabilitation physical therapy, including massage, hydrotherapy and exercise, is of importance. Various drugs are now being investigated, such as curare, neostigmine, racemic amphetamine sulfate, dextro-amphetamine sulfate ("dexedrine"), diphenhydramine ("benadryl") and vitamins; none appears to have any specific action on the disease. Constipation and urinary disorders require special care; urinary infections should be rigorously combated.

Treatments aimed at overcoming infections, bacterial or viral, have been largely abandoned. The antibiotics, arsphenamine and fever therapy are no longer used. The newer attacks are based on the various theories of the cause of the disease. "Dicumarol" is used to combat the possible thrombosis of venules, and vasodilator drugs, particularly amyl nitrate and papaverine hydrochloride, are used to reduce the vascular spasm, thought by some to be a factor in developing the disseminated lesions. Along similar lines, histamine has been given a wide trial without fully accepted results. Sympathectomy as a form of treatment has been largely abandoned. Because remissions and relapses occur in the natural course of the disease, evaluation of any therapy is difficult. All forms of treatment are in the experimental stage. The National Multiple Sclerosis Society has recently been formed for the study of the disease and the advancement of research.

OCCUPATIONAL DERMATITIS DUE TO PENICILLIN

To the Editor:—I have received penicillin twice in the last two years. Last June I had an infected vein in the right leg and took 500,000 units of penicillin in two days. Nine days later there developed dermatitis due to penicillin on my feet, legs, hands, arms and face. I took 50 mg. of "benadryl" and "pyribenzamine," which cleared it up in a few days. Whenever I give penicillin to patients the dermatitis develops again. This has now gone on for two months. Use of gloves and salve on my hands is without effect. Can I be desensitized?

C. W. Johnston, M.D., Jacksonville, Fla.

ANSWER.—Desensitization for contact type of dermatitis due to penicillin is theoretically possible. The final outcome, however, is rather dubious, since your degree of sensitivity is exceptionally high. Hypodermic injections of solutions of penicillin, probably beginning with 0.05 cc. of a solution with a concentration of 10 units per cubic centimeter, given three times weekly, and increasing the dosage as one does in desensitization to pollen should be tried. After the 1 cc. volume is reached the next strength of 100 units per cubic centimeter can be used. Then in sequence 1,000, 10,000 and 100,000 units per cubic centimeter can be employed. During treatment a constitutional reaction consisting of dermatitis is possible if the dose is too great. If this happens the dose should be reduced. If the foregoing procedure is regarded as too tedious or is unsuccessful, the simple expedient of anointing the skin with an ointment of tripelennamine ("pyribenzamine") hydrochloride (Feinberg, S. M., and Bernstein, T. B.; Tripelennamine "Pyribenzamine" Ointment for the Relief of Itching, *J.A.M.A.* **134**:874 [July 5] 1947) before and after the use of penicillin may be of some benefit.

EYELID EDEMA

To the Editor:—A white man, aged 26, complained of a burning sensation in the eyes, photophobia and lacrimation for fifteen years. He had consulted many ophthalmologists, who prescribed various drops, ointments and glasses, without relief. Physical examination revealed a well nourished young man, extremely nervous, who was so "ticklish" that it was difficult to perform a complete abdominal examination. He also had a nonspecific urethritis with a watery urethral secretion which was bacteriologically negative. The patient admitted having gonococcic infection some years ago. Examination was otherwise negative. His eyes were red, with scaly lids, and he had chronic blepharoconjunctivitis, the lids being stuck together nearly every morning. The pupils were regular and reacted to light. Dulness of the cornea was absent. Fundic examination revealed normal conditions except for moderately dilated veins. Vision was 10/10 in both eyes. A basal metabolic test was performed because of his nervousness. The rate was minus 26 per cent. I made a temporary diagnosis of localized myxedema (swelling of lids) and prescribed thyroid extract ½ grain (30 mg.) three times a day. Within three weeks all ocular symptoms had disappeared. Lids were no longer swollen, no more scales were observed. Conjunctivitis had disappeared as well as the excess lacrimation. A control basal metabolic test revealed a rate of minus 12 per cent. I have seen the patient recently and he continues to be well. Do many cases occur resembling this one, in which hypothyroidism appears to be the basis of ocular troubles?

M.D., Canada.

ANSWER.—Cases of lid edema with low basal metabolic rates due to thyroid deficiency have been reported. Weiss and King reported such a series in the *Ohio State Medical Journal* for May, 1932.

The redness of the lid margins and the conjunctivitis may be on an allergic basis. Even puffiness of the lid may be caused by allergies.

HORMONES FOR IMPOTENCE AND DYSMENORRHEA

To the Editor:—Please discuss the use of each of the following substances in impotence, so-called hypogenitalism and dysmenorrhea: testosterone propionate, gonadotropic hormone from pregnant mare serum, such as "anteron," and chorionic gonadotropic hormone from pregnancy urine, like "pranturon." What are the eventual dangers of each of the substances in young men and women? Which gives more lasting results in impotence or hypogenitalism? Which should be used for impotence in men of ages 40 to 50. What is the danger of formation of antihormones? Does testosterone cause atrophy of the testicle or of the germinal epithelium after repeated or prolonged use? What are the carcinogenic influences of these substances? Does pregnant mares' serum used for dysmenorrhea month after month cause adverse effects in the ovaries of young women?

M.D., New York.

ANSWER.—In treatment of dysmenorrhea glandular medicaments may be of value. It should be remembered, however, that in most cases of functional dysmenorrhea the ovaries are quite normal and that endocrine therapy for relief from the pain coincident to menstruation is usually designed to suppress ovarian function. Testosterone propionate is effective either by suppressing ovulation and corpus luteum formation or by partially neutralizing the secretions of the corpus luteum and thus diminishing the stimulus for uterine contraction. It is also possible that testosterone propionate causes a direct relaxation of the uterine musculature and thereby decreases the amplitude of uterine contractions.

One other possible mechanism exists by which testosterone propionate may aid in giving relief from dysmenorrhea. Since it is accepted that functional dysmenorrhea is the result of a low threshold to pain arising from uterine contractions, anything which elevates the threshold will aid in relieving pain. Many patients with dysmenorrhea have premenstrual tension which causes them to be more sensitive to a variety of stimuli. Relief of the premenstrual tension with testosterone propionate will cause a lessening of pain. To obtain relief in dysmenorrhea, therefore, it is suggested that testosterone propionate or the oral preparation, methyl testosterone, be administered during the ten days preceding menstruation.

Chorionic gonadotropic hormone or equine gonadotropin hormone have little physiologic basis in treatment of dysmenorrhea.

In the treatment of impotence or hypogenitalism, testosterone propionate is usually the endocrine of choice. Chorionic gonadotropic hormone from pregnancy urine is effective in stimulating the testes of individuals when the testes are potentially normal but under-functioning, as in prepuberty. Under such conditions the testes can be made to secrete their natural sex hormones, thus causing maturation of the secondary sex organs and male characteristics. For this reason it is used for treatment of functional cryptorchidism. In most cases of hypogenitalism in the adult this material is ineffective. Equine gonadotropin does not appear to have any advantage over chorionic gonadotropin for the identical conditions.

In the treatment of impotence, one must distinguish between psychic, organic and senile impotence. In the first condition varying amounts of psychotherapy may be effective, action of medication being mainly through suggestion. In senile impotence no endocrine material is of value because of the lack of erectile tissue function. Where impotence is due purely to a lack of male sex hormone, testosterone propionate is a specific substance. No antihormones develop from this material, and danger of organic harm in men treated with this material in the therapeutic dosages even though administered over long periods of time is no greater than that induced by functioning testes. Testosterone may cause atrophy of the testes with suppression of spermatogenesis, but normal tubular function returns after cessation of therapy.

Little evidence exists as to carcinogenic effects, the doses ordinarily used in human cases apparently do not have such effects. The administration of the gonadotropins if continued over long periods of time may occasionally produce deleterious effects on the ovaries. These organic changes are chiefly limited to the development of cysts in the ovaries and may result in disturbances of menstruation. The formation of antihormones by the gonadotropins is possible, and if these develop there is resistance to further therapy, although no eventual harm results from the formation of the antihormones.

FLUORINE IN DENTAL CARIES

***To the Editor:*—What information exists relative to uses and dangers of fluoride? My 4 year old child is developing cavities in his teeth despite balanced diet, milk, cod liver oil in capsules or Lilly's Homicebrin capsules. Would you advise using the tablets or lozenges of "Enziflur?" What other suggestions are you able to give? Please discuss the use of fluorine in adults.**

M.D., Oklahoma.

ANSWER.—There is no acceptable adequately controlled scientific evidence that would indicate that the intensity of dental caries attack in a 4 year old child can be markedly inhibited by balanced diet, milk, cod liver oil in capsules or Lilly's Homicebrin. In respect to the use of "Enziflur," an editorial in the *Journal of the American Dental Association* (**34**:345-346, March 1, 1947) states in part: "Strean and Beaudet (Strean, L. P., and Beaudet, J. P., Inhibition of Dental Caries by Ingestion of Fluoride-Vitamin Tablets, *New York State J. Med.* **45**:2183 [Oct. 15] 1945) have reported some lessening of caries activity in children receiving daily supplements of 3 mg. of calcium fluoride for periods of six to eight months. This study is not conclusive because it is based on totally inadequate data to support the claims made. Until more convincing data are presented, therefore, the use of fluorides in dentifrices, mouth washes, tablets, and lozenges cannot be recommended."

If cavities are developing rapidly the intake of refined sugars should be sharply curtailed and consideration given to the topical application of a 2 per cent solution of sodium fluoride immediately after a prophylaxis by a dentist.

The evidence in respect to the use of fluorides for control of dental caries in adults is so limited and inconclusive that a statement as to whether it will or will not reduce the incidence of dental caries is largely conjectural.

BELYANDO

***To the Editor:*—A patient's chief complaint consists of two or three spasmotic paroxysms of vomiting before breakfast. Occasionally a slight amount of mucoid material is raised. Other associated symptoms are absent. He stated that such a condition is commonly experienced in Australia and Queensland during the summer season and recurs among the native whites seasonally, being termed "Barcoo spew" or "belyando." Is there information available concerning the etiology, pathogenesis and treatment of this condition?**

M.D., Florida.

ANSWER.—Barcoo spew is defined by medical dictionaries as nausea, vomiting and sometimes bulimia encountered in the upland region of the Barcoo River of southern Australia. Its cause appears to be unknown. A similar syndrome was observed in military personnel during World War II, associated often with nervousness, dissatisfaction with the rough life and perhaps some gastritis. Prebreakfast nausea and vomiting will make the physician think of chronic alcoholism, achlorhydria, chronic tuberculosis, an unsatisfactory diet or a neurosis. Occasionally early morning rumbling in the abdomen, gas and perhaps vomiting will be due to eating too large a supper or eating some food to which the patient is allergic. Such an etiologic basis may easily be tested for by having the patient go without any supper for a few evenings. If this brings relief, one food can be taken each evening until it is determined which are the harmless and which are bad. If there is achlorhydria, ½ teaspoon dilute hydrochloric acid can be taken in a large glass of water with meals. If this does not help promptly it should be stopped. A smooth nonirritating type of diet can be tried. If the patient is drinking, smoking or eating too much these habits should be moderated. If there are signs of a neurosis or mild psychoneurosis that problem should be investigated.

Obviously, before treatment is started the stomach and gallbladder should be examined roentgenologically. A diaphragmatic hernia should be looked for by the physician.

ANESTHESIA IN OBSTETRICS

***To the Editor:*—What are the present dangers and complications of caudal analgesia? How does caudal anesthesia compare with the conventional types of obstetric anesthesia, such as "demerol" and scopolamine followed by ether or gas and ether? What are the statistics on the respective maternal and fetal mortality and morbidity?**

Rudolph Joseph, M.D., Freeport, N. Y.

ANSWER.—Caudal analgesia is not used as much today as formerly. Reasons for this are the possibility of major and minor complications, the necessity for a specially trained group of obstetricians and anesthetists and the present use of low spinal and saddle block anesthesia. It is difficult to give exact figures for maternal and fetal deaths for either caudal analgesia following meperidine ("demerol") and scopolamine or other forms of anesthesia following these analgesic drugs. In a recent article on "Anesthesia in Obstetrics," J. P. Greenhill (*Am. J. Obst. & Gynec.* **54**:74-81 [July] 1947) makes the following statement about caudal analgesia: "In my opinion there is no more satisfactory and pleasant type of analgesia in obstetrics than this procedure (caudal analgesia) when it is performed properly without a mishap. However, because of the definite though slight risk of death and the chance of producing a minor or a major complication, continuous caudal analgesia has a limited field of usefulness. It is definitely a hospital procedure and should be used only in those hospitals which have a large and sufficiently experienced personnel. This personnel should not only be experienced in obstetrics and anesthesia, but also specifically trained in administering caudal analgesia. Likewise, this personnel must have the time and the willingness to be in constant and vigilant attendance on women who are given this type of anesthesia. Furthermore, resuscitation apparatus must be available for instant use and personnel trained in its employment. Because of the possible dangers and complications, the trained personnel and apparatus required and the high cost of this type of anesthesia, there is no need to use it for the average woman in labor. Most of the pains of labor, which are quickly forgotten in any event, can be relieved by less hazardous drugs and anesthetics."

In table 2 (arranged from Trent and Gaster, *Ann. Surg.* **119**: 954, 1944) of his article, Greenhill presents these data:

Anesthetic	Number of Anesthesias	Anesthetic Deaths	Number per 1,000 Anesthesias
Local	13,151	0	0
Ether	14,724	6	0.407
Nitrous oxide	6,705	2	0.295
Nitrous oxide with ether	2,175	2	0.919
Cyclopropane	5,744	4	0.691
Spinal	5,436	6	1.100
Spinal with supplement	930	2	2.150
Total	54,128	22	0.498

Concerning the effect of anesthetics on the baby, Greenhill says: "Local infiltration anesthesia has absolutely no deleterious effect on the baby. Likewise, caudal and spinal anesthesia do not affect the baby adversely except in the few cases where there is a precipitous drop in blood pressure. On the other hand, the inhalation anesthetics have been responsible for the deaths of some babies. In most cases it is probable that the analgesic drugs given to relieve the pain of the first stage plus the anesthetic administrated for delivery caused the fetal casualties; but inhalation anesthetics by themselves have caused deaths of newborn babies. Inhalation anesthetics are particularly dangerous for premature babies and babies whose mothers have diabetes and other complications."

ZINC CONTENT OF LEUKEMIC CELLS

***To the Editor:*—I have heard rumors of a new method of treating the leukemias, especially chronic leukemia, by the use of zinc. I have been unable to obtain information on this matter and do not even know what clinic has been doing the work. What information is available?**

R. H. Johnstone, M.D., Chicago.

ANSWER.—Studies on the zinc content of leukemic cells were reported at the recent meeting of the fourth Congress of International Cancer Research. The studies were performed by Dr. John G. Gibson and his associates, Boston, and indicated that the zinc content of white cells was decidedly decreased in both lymphatic and myelogenous leukemia. The plasma values were within the normal range, but red cell values tended to be above normal.

Following urethane therapy in 1 case of myelogenous leukemia, the white cell zinc unit value was observed to rise. Studies with radioactive zinc suggested that mobilization and utilization of zinc was more effective during a period of decline of the white blood cell count. The authors estimated that the daily intake of new zinc in a case of subacute myelogenous leukemia under observation was 2 mg. per day. Doses in excess of this amount failed to raise the white cell unit value of zinc to normal limits, nor was the white count significantly altered. Comments were not made by the authors as to therapeutic application of these observations.

PENICILLIN - AEROSOL

To the Editor:—I should like some information on penicillin aerosol. On a recent trip to Baltimore I saw it used in a doctor's office and he seemed to be treating a great number of cases of purulent infections of the upper part of the respiratory tract. The articles I have read in *The Journal* show apparatus which does not appear to be as satisfactory as what I saw in Baltimore. This particular device had several pressure gages, and the solution was forced through nasal cannulas using a regular electric pump instead of an oxygen tank. I was told that it employed both negative and positive pressure, thus evacuating air from the sinuses and replacing it with the penicillin mist. What is the consensus at present in regard to the merits of penicillin aerosol? What are its harmful effects? What apparatus is considered best, and where can it be obtained?

M.D., Tennessee.

Answer.—The results of the use of penicillin aerosol together with the various types of apparatus that are useful have been reported by Garthwaite, Barach and their technical assistants. It was their opinion that antibiotic aerosol therapy constituted an effective and practical technic which may be added to other orms of therapy in the management of patients with bronchopulmonary suppuration. The cases included bronchiectasis, acute and chronic abscess of the lung and chronic bronchitis. In addiion to these cases they have reported some favorable results in he treatment of chronic sinusitis.

DIABETIC TEETH

To the Editor:—Is there any characteristic staining of or significant changes in teeth of diabetic persons?

M.D., Pennsylvania.

Answer.—There is no characteristic staining of the teeth of diabetic persons and no significant changes in the teeth that can be attributed to diabetes alone. Diabetic persons in coma or severe acidosis will have dehydrated, cherry-red oral mucous membranes with loosening of teeth. These changes disappear on treatment.

Greater susceptibility to caries, pyorrhea and deposits of tartar about the teeth are associated with but are not consistently characteristic of diabetes mellitus.

COTTONSEED

To the Editor:—A patient whom I recently skin tested was sensitive to cottonseed. In what common foods and materials does this item occur?

M.D., Illinois.

Answer.—Cotton seed oil may be used in the preparation of margarine, salad oils, vegetable shortenings, mayonnaise, sandwich spreads and other related products. Parts of the seed when finally ground are used in certain breads and bakery goods. Thus in order to avoid foods containing cotton seed products, it is necessary to prepare foods at home or to use only those of known origin.

SKIN IRRITATION FROM ILEOSTOMY

To the Editor:—What are the latest protecting applications used on the skin surrounding the stoma of an ileostomy.

Jean Spencer Felton, M.D., Oak Ridge, Tenn.

Answer.—The best treatment for irritation of the skin surrounding the stoma of an ileostomy is prevention. This can best be accomplished by the use of a Koenig-Rutzin cup. This is applied by rubber cement to the skin and thoroughly excludes the skin from irritation. If the skin is irritated, it must be brought back to normal before the cup can be applied. This is best accomplished by putting the patient in prone position for twenty-four hours, allowing the ileostomy discharge to drain into a basin so that the skin will be entirely free. The skin can also be covered with an aqueous solution of methylrosaniline chloride (gentian violet), which hardens it and aids in the healing of the abraded areas.

A new technic includes the bringing of the intestine well out of the opening and surrounding it with a skin graft.

STREPTOMYCIN IN TUBERCULOUS PERITONITIS

To the Editor:—Has streptomycin been used in treatment of tuberculous peritonitis?

M.D., Canada.

Answer.—Streptomycin has been used on isolated cases of tuberculous peritonitis in several institutions, but an adequately large series of cases has not been observed by any one physician to permit a clinical appraisal of the value of streptomycin in the treatment of this condition. Accurate diagnosis of tuberculous peritonitis ordinarily is obtained only by abdominal exploration or peritoneoscopy. Prompt clinical improvement is frequently experienced following such diagnostic procedures. Other methods of treatment initiated at this time might be given credit for such spontaneous improvement. All reports of the therapeutic effects in tuberculous peritonitis should therefore be viewed with reservations.

DEATH IN A WELL

To the Editor:—A patient aged 52, never strong, went down an open well 45 feet deep to clean it. A few minutes after reaching the bottom he said, "I am coming out." Before he could get up he slumped over. He was dead when removed. Before descending the well a lantern that he let down continued to burn. After pulling the man out the lantern was again let down. It still continued to burn. A canary bird placed in the well died in two minutes. A pigeon remained in the well fifteen minutes—in good condition. Did the man die from carbon monoxide? He had had a heart attack five days before he died. Could it be that the exertion of going down killed him?

E. N. Powell, M.D., Corydon, Ky.

Answer.—Death was in all probability due to the heart condition from which the patient was known to be suffering.

When death occurs from poisoning with carbon monoxide, it is not so sudden. It is preceded by a regular sequence of events, beginning with dizziness and followed by headache, weakness, drowsiness, stupor and unconsciousness, This is usually followed by convulsions, muscular rigidity and death due to cardiac arrest. Death was too sudden for carbon monoxide poisoning.

TONSILLECTOMY IN PREGNANCY

To the Editor:—Is tonsillectomy contraindicated in the early months of pregnancy? A young woman in the first month of pregnancy aborted two months after a tonsillectomy performed with the patient under local anesthesia. Her physician believes that the tonsillectomy was the cause of her abortion in spite of the interval of two months. M.D., Arizona

Answer.—Tonsillectomy with the patient under local anesthesia is not contraindicated during the first trimester of pregnancy if the indications for the procedure do not permit delay until after delivery. In general it is better to postpone elective surgical procedures of this type. Abortion two months after tonsillectomy is difficult to relate to the operation.

PENICILLIN ARTHRALGIA

To the Editor:—After a sailor, aged 22, received 7,000,000 units of penicillin for primary syphilis there developed urticaria and erythema multiforme, polyarthropathy consisting of tender, reddened, painful ankles, knees, wrists and elbows. The administration of penicillin was stopped immediately, and "benadryl" was started. The allergic cutaneous manifestations and articular symptoms subsided promptly; however, pains and aching have persisted in the knees for two months. There was a history of transient pains in the joints several years ago. Can the persistent symptoms in the knee joints be explained on an allergic basis?

Lieutenant (MC), U.S.N.R.

Answer.—The arthralgias that occur during the course of penicillin hypersensitivity are self limited and last for only a few days to two weeks. In view of the history of transient pains in the joints several years prior to treatment with penicillin look for other causes to explain the persistent arthralgias. It is impossible to state whether the persistent symptoms in the knee joints can be explained on an allergic basis, and certainly it would be most difficult to prove.

The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

VOL. 136, NO. 11
CHICAGO, ILLINOIS
COPYRIGHT, 1948, BY AMERICAN MEDICAL ASSOCIATION
MARCH 13, 1948

PROGRESS IN BRONCHOLOGY

LOUIS H. CLERF, M.D.
Philadelphia

The physician who entered the field of medicine twenty-five years ago either was unfamiliar with bronchoscopy or associated it only with removal of foreign bodies which had become wedged in the air passages. These accidents were considered as rare medical curiosities, and as a result few physicians actually witnessed a bronchoscopic procedure. Now, a quarter of a century later, bronchology is a recognized specialty in medicine, and practically every large hospital has a well organized bronchoscopic clinic.

Originally designed and perfected for the removal of aspirated foreign bodies, bronchoscopy now is employed as an aid either in diagnosis or in treatment of practically all bronchopulmonary diseases associated with bronchial obstruction or with an increase of bronchial secretions. The scope of its uses has exceeded the original concepts so that its relation to certain fields of medicine and surgery can be considered as on a par with that of roentgenology. While about 25 per cent of the bronchoscopies performed in the few bronchoscopic clinics in existence a quarter of a century ago were done to remove foreign bodies from the air passages, now in the many hundreds of clinics established over the entire United States, as well as in foreign countries, less than 2 per cent of all bronchoscopic procedures are performed for this purpose. The occurrence of foreign body accidents has not diminished, but the number of cases is overshadowed by the enormous group of bronchopulmonary diseases requiring bronchoscopic study and treatment.

No chapter of modern medicine is more interesting or more conspicuous than that contributed by bronchology concerning the symptoms, the pathologic aspects, the diagnosis, the prognosis and the treatment of foreign bodies in the air passages. In the days of Samuel D. Gross, the mortality rate of surgical attempts to remove foreign bodies from the air passages was over 27 per cent. Failures were common, and in these pulmonary suppuration with chronic invalidism was the usual outcome. In our larger bronchoscopic clinics, where there are available records of many hundreds of cases of foreign bodies in the air passages, the mortality rate is less than 1 per cent, and failures are rare.

Bronchology has added enormously to knowledge of the function of the tracheobronchial tree. It has contributed information concerning obstructive emphysema and atelectasis and the interpretation of physical signs. In the diagnosis of bronchopulmonary disease it has become a valuable aid to the internist. It has aided materially in the progress made in the fields of thoracic surgery and anesthesiology. In dealing with the problems of respiratory obstruction, the anesthesiologist has become familiar with the methods of the bronchologist. He has utilized to a great extent the equipment commonly employed in the field of bronchology.

A detailed account of all the contributions made to medicine and surgery in the field of bronchology, as well as of the numerous contributors, would exceed the allotted time and space of this presentation. Reference therefore will be made to the more recent advances and to the present status of bronchology in diagnosis and treatment.

BRONCHOGENIC CARCINOMA

Until two decades ago a diagnosis of carcinoma of the bronchus usually was made by the pathologist in the autopsy room. This procedure was slowly replaced by bronchoscopic biopsy, with a positive diagnosis of the lesion in the living patient, and as a result opportunity was given thoracic surgeons to evolve a technic for the successful removal of the entire lung for carcinoma. The increasing interest taken in carcinoma by the general practitioner and the internist has resulted in the accumulation of clinical reports aggregating many hundreds of cases, with bronchoscopic biopsy yielding a positive diagnosis in from 60 to 80 per cent of the cases and bronchoscopic anatomicopathologic findings warranting a diagnosis of carcinoma in an additional 10 to 15 per cent of cases.

In evaluating the results of surgical treatment of bronchogenic carcinoma it soon became apparent, however, that positive bronchoscopic diagnoses, although made during life, gave too few opportunities for successful surgical extirpation of the tumor. It also became evident that, in order to treat this disease successfully, it would be necessary to make the diagnosis earlier, before larger bronchi became obstructed, and to have the search for lesions located beyond the visual field of the bronchologist brought to an earlier conclusion diagnostically.

A telescopic lens system employed as a bronchoscopic obturator for inspection of lesions "around the corner."

From the Department of Laryngology and Broncho-Esophagology, Jefferson Hospital.

Read before the Section on Laryngology, Otology and Rhinology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

in the bronchi of the upper lobe was added to the armamentarium, but, it provided little diagnostic assistance.

Recently cytologic studies of bronchial secretions have shown that "cancer cells" are present in the bronchi in cases of bronchogenic carcinoma. With the aid of appropriate collection tubes and aspirators, secretions may be secured bronchoscopically from the site of the suspected carcinoma, and, with special staining methods, the cells may be recognized as being neoplastic in character. It has been conclusively demonstrated in at least an additional 20 to 25 per cent of cases that carcinoma can be diagnosed positively in those whose lesions are beyond bronchoscopic vision. It also has been shown that complete surgical removal can be carried out in a higher percentage of cases in which carcinoma occurs in bronchi beyond the field of bronchoscopic vision than of the group in which the lesions are diagnosed by bronchoscopic biopsy. If this method of diagnosis could be utilized with all patients whose roentgenograms present suspicious shadows and if routine roentgenographic surveys were made of the chests of all adults who are presumably well, the outlook of the patient with bronchogenic carcinoma would be hopeful. It is a common experience to find that definite diagnostic procedures have been delayed until the disease is advanced. That is why bronchogenic carcinoma has been recognized late and why it is suitable for surgical treatment in relatively few cases.

Attempts have been made to treat bronchogenic carcinoma by endobronchial implantation of radon or by application of radium element. These have been attended by little success.

BENIGN TUMORS

While the incidence of carcinoma of a bronchus is about ten times greater than that of benign bronchial tumor, the occurrence of a tumor of the latter type must be considered in every case of bronchial obstruction. Adenoma of the bronchus, a glandular tumor, is the most common form of relatively benign growth and often is observed in young adults. Although the earlier bronchoscopic biopsies of such tumors were reported as revealing adenocarcinoma, further studies of these tumors have shown that they are definite neoplastic entities. Many patients with endobronchial benign tumors have been successfully treated by instrumental removal and diathermy carried out bronchoscopically. Adenoma often occurs as an endobronchial or an extrabronchial tumor. This usually can be demonstrated by body section roentgenography. In addition, adenoma may undergo cancerous changes. As a result, surgical extirpation must be considered in treatment.

PULMONARY ABSCESS

In the earlier days, before external surgical drainage of pulmonary abscess or lobectomy became a relatively safe procedure, bronchoscopic aspiration was an accepted therapeutic procedure in the medical management of pulmonary abscess, and many lives were saved by this means. Today, with prophylactic measures, sulfonamide compounds and antibiotic drugs, as well as surgical treatment, the trend has been away from bronchoscopy, which now has little place in the medical treatment. It still remains a valuable diagnostic aid, however, in cases of suspected bronchial obstruction complicated by pulmonary abscess.

BRONCHIECTASIS

For many years prior to the development of a safe surgical plan of therapy, bronchoscopy was employed as a palliative form of treatment for bronchiectasis. Now surgical removal of the involved pulmonary tissue is a safe procedure and should be carried out whenever possible. Bronchoscopy still has a definite place in the medical management of the patients not suitable for surgical treatment. It also is of value in the medical preoperative and postoperative care of the surgical group.

BRONCHIAL ASTHMA

While this condition commonly is a problem for the internist and the allergist, the assistance of the bronchologist often is required in both diagnosis and treatment. The role of the bronchologist therefore includes investigation of the tracheobronchial tree to rule out certain conditions that simulate asthma and to remove secretions from the air passages. Patients with foreign bodies in the air passages, even in the esophagus, not infrequently have been studied carefully from an allergic standpoint, and only later it is discovered that there was present a foreign body. One of the symptoms which commonly misleads to a provisional diagnosis of asthma is wheezing respiration. The mechanism of its production and its clinical significance often have been discussed by the bronchologist. Wheezing also is commonly a symptom of partial obstruction of a bronchus, and it is in this case that bronchoscopy is of value as a diagnostic aid and often as a therapeutic measure.

Studies of fatal cases of status asthmaticus have shown that one of the most common and important causes of death is the blocking of the larger air passages by thick, tenacious secretion. Failure to secure a satisfactory response by the accepted methods of medical treatment in cases of marked dyspnea due to accumulated secretions necessitates that these be mechanically removed by bronchoscopic aspiration. Spectacular results have been secured at times in moribund patients. It is obvious, of course, that in cases of this type little can be hoped for unless the life-saving measures are employed by one well qualified; for among bronchologists it is admitted that two contraindications to bronchoscopy are an inadequate armamentarium and a poorly trained bronchologist.

POSTOPERATIVE PULMONARY ATELECTASIS

Bronchoscopic investigation of so-called postoperative or atypical pneumonia revealed that in many cases the condition was not true pneumonia but the result of a blocking of bronchi by thick, tenacious secretions. Postoperative pulmonary atelectasis now is recognized as a definite clinical entity, and with this recognition appropriate treatment has reduced its more serious complications and sequelae to a minimum. In addition, preventive measures are carried out, so that it is of uncommon occurrence. Bronchoscopy is utilized now only in cases in which postoperative atelectasis does not respond to the more simple plans of therapy and mechanical aspiration of secretions must be resorted to. Bronchoscopic or catheteral aspiration also has a definite place in the medical management of all postoperative or post-traumatic conditions in which for various reasons the secretions cannot be coughed up from the air passages. They are well recognized procedures which have contributed greatly in decreasing morbidity and mortality.

TUBERCULOUS TRACHEOBRONCHITIS

Two decades ago it was axiomatic that bronchoscopy was definitely contraindicated in pulmonary tuberculosis. With increasing numbers of patients being subjected to diagnostic bronchoscopy because of obscure pulmonary diseases, many of those diseases were diagnosed as tuberculous, and as a result the frequent occurrence of tuberculous tracheobronchitis was discovered. It was noted further that no untoward effects resulted from bronchoscopy in the tuberculous patients. As collapse therapy, notably thoracoplasty, was increasingly employed for tuberculosis, with unfavorable postoperative results, a new impetus was given to bronchoscopy. It became apparent that the presence of bronchial obstruction interfered with collapse therapy, and preoperative bronchoscopy soon became a routine procedure. Statistical reports indicate that routine diagnostic bronchoscopic examination of all tuberculous patients admitted for treatment will show an incidence of demonstrable tuberculous tracheobronchitis of about 10 per cent. In tuberculous patients suspected of having tracheobronchial lesions the incidence varies from 25 to 30 per cent.

Since the acquisition of knowledge of this condition is recent, there still is some difference of opinion concerning the value of endobronchial treatment of these lesions. Bronchoscopic cauterization, preferably employing silver nitrate, is most often done. The most important bronchoscopic contribution, however, is the recognition of tracheobronchial lesions which, if unrecognized or uncorrected, would seriously impair the benefits of collapse therapy.

Many phthisiologists now have listed innumerable indications for employing bronchoscopy in the management of patients known to be tuberculous, and the time has arrived when but few contraindications to its being used in tuberculosis remain.

Direct inspection is always of distinct value in diagnosis. In the study of the tracheobronchial tree it must be remembered that the entire lung is not open to inspection. Bronchoscopic inspection should be considered as only one of a number of diagnostic measures and is supplementary to complete clinical and roentgenographic studies. It therefore is indicated as a diagnostic procedure in cases of pulmonary disease in which there is a diagnostic question remaining after physical examination and roentgenologic and laboratory investigations have been carried out. This includes the large group of cases of obscure chronic cough, hemoptysis and wheezing respiration as well as unexplained roentgen findings and physical signs. In any case of pulmonary disease, when there is doubt whether bronchoscopy should or should not be done, it should be done, provided there are no definite contraindications.

Positive findings are of the utmost value; negative findings usually can be considered of little importance but at times may be very important. Bronchoscopy still offers the only method of treatment of foreign bodies lodged in the air passages. It is a valuable aid in the diagnosis of obscure bronchopulmonary signs and symptoms, and its outstanding contributions at the present time lie in this field.

1530 Locust Street.

ABSTRACT OF DISCUSSION

Dr. Henry Boylan Orton, Newark, N. J.: It is indeed a privilege to discuss Dr. Clerf's paper on progress in bronchology. There is little that can be added except to reiterate that which has already been said. As Dr. Clerf stated, bronchoscopy was originally for the removal of foreign bodies—and in the days of Samuel Gross there were two types of foreign bodies, as he classified them: The patients who had swallowed or inhaled a foreign body vomited or coughed it up and got well, and the others went to the autopsy table. As brought out in Dr. Clerf's presentation, the scope of its uses has exceeded the original limitations, and I agree that its relation to certain fields of medicine and surgery should be considered as on a par with that of roentgenology. In the past year I have used the bronchoscope in the treatment of bulbar lesions in 2 patients with poliomyelitis, even when they were in the iron lung, to remove secretions which the patients were unable to cough up. One important part of Dr. Clerf's paper is that relating to the cytologic study of bronchial secretions. This examination should be done in all hospitals, and all hospital laboratories should be equipped to be able to do this work, thereby diagnosing conditions of carcinoma of the lung earlier and giving the patient a better chance for surgical procedure. Too much of this work on the cell content of secretions is left to technicians or other persons in the hospital who are not thoroughly familiar with the technic. This should be remedied. Two important contraindications to bronchoscopy, as brought out in Dr. Clerf's paper, are an inadequate armamentarium and a poorly trained bronchologist.

Dr. H. J. Moersch, Rochester, Minn.: Dr. Clerf, in his usual able manner, has given an excellent presentation of the development of bronchoscopy of the past twenty-five years. He failed to mention that twenty-five years ago the bronchoscopist needed to possess, in addition to certain skill for the performance of bronchoscopy, decided eloquence, to enable him to convince his colleagues that the procedure should be carried out in cases other than those of dire necessity. Today the picture is changed, and bronchoscopy is looked on as a necessary adjunct in any well developed section on thoracic diseases and as an essential procedure in any large general hospital. Although the removal of aspirated foreign bodies still remains one of the important functions of bronchoscopy, this is not the main function of bronchoscopy at present. Bronchoscopy is of greater value and importance in the diagnosis of pulmonary disease. Such conditions as hemoptysis of unexplained origin, cough, expectoration, wheeze and unresolved pulmonary inflammatory changes always indicate bronchoscopy. The value of bronchoscopy in the diagnosis of benign and malignant tumors has been well emphasized by Dr. Clerf. However, if improvement is to be made in the diagnosis and treatment of pulmonary carcinoma, early diagnosis becomes a matter of greatest importance. Bronchoscopy enables the physician to diagnose carcinoma in approximately 65 per cent of cases. Too frequently, however, it is a late, rather than early, diagnosis. Dr. Clerf and his associates have made a distinct contribution to the solution of the problem of earlier diagnosis of carcinoma of the lung by emphasizing the importance and value of the cytologic study of secretions of the bronchial tree, which may reveal malignant cells. By this method it is possible to increase one's diagnostic acumen by perhaps 20 to 30 per cent. During the past two decades a great change has taken place in the role played by bronchoscopy in the study of tuberculosis. Two decades ago the examination was undertaken with much fear and trepidation in cases of tuberculosis, but today it is looked on as a routine procedure in the study of this disease. It will undoubtedly become of even greater importance with the advances that have been made in thoracic surgery as applied to the treatment of tuberculosis, and also with the introduction of streptomycin. Dr. Clerf has called attention to the value of bronchoscopy in the study of postoperative atelectasis and has said that bronchoscopy is of special value when this condition does not respond to other forms of treatment. I would even go a little farther and say that it should be employed as a preventive of this condition. Undoubtedly, bronchoscopy will make many more advances in the future, such as that in the study of pulmonary function.

Dr. Eelco Huizinga, Holland: I wish to congratulate Dr. Clerf on his excellent paper. His message concerning examination of the secretions is important, and that proves that great improvements in endoscopy still come from Philadelphia. I should like to mention the fact that in some of these cases in which one cannot find the lesion by looking through the bronchoscope, it is possible to do a biopsy directed by a bronchogram.

Dr. Andre Soulas, Paris, France: Bronchologic advances made during the past decade are important in the field of tuberculosis and neoplasm of the bronchus. But these advances are nowhere near as important as the progress which was made during the period between 1929 and 1935. It was during that first period that Chevalier Jackson and his school discovered and specified the syndrome of the obstruction of the bronchus. The discovery was important, with all its consequences on pulmonary pathology, this pulmonary pathology which in 1920 had not yet been defined. The period between 1920 and 1930 marks the greatest progress of bronchology, since the syndrome of obstruction of the bronchus is, and will always be, at the base of bronchology. However, I think—and it has been the object of my researches for the last ten years—that it is necessary to emphasize the pathologic aspect of the wall of the principal bronchial system. This parietal pathology, as well as the relationship between the pleural and the bronchoalveolar region and the bronchial system, must be and will be the object of most interesting researches. For all these reasons, in the future the laryngologist will be the best bronchoscopist on the one and only condition that he is familiar with the physiology and the pathology of the whole thorax, in particular, the respiratory tract.

Dr. Irving Wilson Voorhees, New York: I have had an opportunity to see at the Manhattan Eye, Ear and Throat Hospital and also at the Medical Center (Presbyterian Hospital) men at work in this great specialty which has grown so rapidly. For many years I have had the privilege to know and observe Jackson in Philadelphia and many others who have developed direct tube work. As a student and intern, I often heard of a patient "drowning in his own secretion." One seldom hears that expression these days, although it probably does occur. Dr. Clerf and Dr. Orton have both well brought out that it is a charge against every medical man to allow such a thing to happen. It occurs to me that every anesthetist should be basically trained in bronchoscopy, because some of the so-called "deaths on the table" due to status lymphaticus are not at all due to status lymphaticus, but to failure of respiration because of some obstruction—secretions, foreign body or what not. Years ago at the Manhattan, we admitted two children, brother and sister, for tonsillectomy. On my way out of the hospital, I was called back to the operating room. The little boy was back on the table, and an intern was struggling to get him to breathe. I did a tracheotomy—I was not a bronchoscopist at that time—but the child never breathed through the tube. At autopsy we found grapefruit seeds at the bifurcation of the trachea. A visitor to the ward, against all orders, had given this child grapefruit! The pulp and seed had been swallowed, regurgitated after anesthesia, then inhaled. Asphyxia might possibly have been prevented if a bronchoscopist had been there. At least the boy would have had a chance. So I think we might well recommend that all anesthetists be equipped to do an emergency bronchoscopy. In hospitals where nurse anesthetists are employed, they might also be trained to use a tube and suction until a staff bronchoscopist can be called.

United States Libraries.—The Department of State maintains U. S. Libraries in three of the other American republics as part of the program of the Interdepartmental Committee on Scientific and Cultural Cooperation: the Biblioteca Benjamin Franklin at Mexico City, the Biblioteca Americana de Nicaragua at Managua, and the Biblioteca Artigas-Washington at Montevideo. The libraries are typical American public libraries, staffed with professional American librarians and operated in accordance with standard American library practice. They provide their users with complete and accurate information about the United States, whether of a general, technical or scientific nature.—Report of the Interdepartmental Committee on Scientific and Cultural Cooperation, July 1946 to June 1947, U. S. Department of State.

STATISTICAL STUDY OF LIFE CYCLE OF 1,154 CASES OF DUODENAL ULCER

MAURICE FELDMAN, M.D.
Baltimore

Attention has frequently been focused on many phases of peptic ulcer. Although most factors in the production and life cycle of peptic ulcer are probably known, the complete picture of this condition has not been fully attained. The causes of peptic ulceration remain a debatable question. The role of acid still seems predominant in the etiology of this condition. The importance of psychogenic influences is fairly well established, but the exact mechanism in which it plays in the etiology of peptic ulcer is not definitely known. There is no doubt of its constant association in the majority of cases of duodenal ulcer.

The life cycle of duodenal ulcer usually follows a distinct clinical pattern. In many instances there are clinical variables. The clinical variations are due to the type, acute or chronic, healing, recurrences and complications. The majority of duodenal ulcers are of the chronic type. The symptoms often come on insidiously and are controlled by proper eating habits; thus the abnormal condition is not recognized by the patient.

Recent studies on vagotomy have stimulated considerable impetus on this condition and emphasized the neurogenic influences in peptic ulceration. The rising incidence of peptic ulcer has created more than a passing interest among clinicians; therefore it seemed important to determine whether this increase is actual or apparent. The greater incidence in recent years is based on the supposition that a larger number of cases of peptic ulcer were seen as a result of the war. This study, involving 7,300 gastrointestinal examinations, was made of an unselected group of ambulatory private patients of both sexes and all ages. In order to establish accurate data regarding the incidence, a ten year study was made of 1,154 cases of duodenal ulcer. These cases were divided into two five year periods: (1) prewar, 1937 to 1941, and (2) during and immediately after the war, 1942 to 1946. An appraisal of the data collected over a ten year period, with two separate psychologic periods, should give some statistical evidence regarding the cycle of peptic ulcer and materially add to our knowledge. An attempt was therefore made to establish what effect, if any, the emotional strain and overwork during the wartime had on peptic ulcers, not only on increase of the incidence, but on the recurrences and severity of the symptoms.

Of the 1,154 cases of duodenal ulcer, there were 480 cases during the prewar period and 674 cases observed during the war years. The purpose of this presentation is to determine (1) whether the incidence of duodenal ulcers increased during the war, (2) differences in the sex and age incidence in the two periods, (3) increase in prevalence of acute ulcers, (4) changes in the roentgen incidence of the ulcer niches and (5) increase in recurrences.

Read in a symposium on Peptic Ulcer before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947

INCIDENCE

It is the concensus that the incidence of duodenal ulcer increased in the civilian population during the war. One would naturally expect an increase in the incidence of ulcer, because of the tremendous amount of emotional strain, tension and overwork during the war. In a ten year study approximately 7,300 persons presenting digestive disturbances were examined, 3,500 in the first five year (prewar) period, 1937 to 1941, and 3,800 in the second five year (war) period, 1942 to 1946. During this ten year period 1,154 cases of duodenal ulcer were found, an incidence of 15.8 per cent. In the five prewar years there were 480 cases or 13.7 per cent. In the second five years, during and immediately following the war, there were 674 cases of duodenal ulceration, an incidence of 17.7 per cent. These statistics revealed a slight ascending trend in the incidence of duodenal ulcer during the war period.

SEX INCIDENCE

It was of interest to determine whether the sex incidence changed during the war. There was an actual increase in the number of females examined during this period; therefore there was an apparent increase in the number of females with peptic ulcer seen during the wartime.

Table 1.—*Age and Sex*

	Male		Female		Total	
Age When Examined, Years	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
Under 10	1	1	0	0	1	1
10-19	3	13	5	3	8	16
20-29	66	103	11	17	77	120
30-39	125	190	18	36	143	226
40-49	111	139	25	30	136	169
50-59	59	85	15	16	74	101
60-69	25	24	9	5	34	29
70-79	4	10	2	1	6	11
80-89	1	0	0	1	1	1
Totals	395	565	85	109	480	674

Of the 480 persons with duodenal ulcer noted in the first five years, 395, or 82.3 per cent, were males and 85, or 17.7 per cent, were females. In the second five year group, there were 674 persons, of whom 565, or 83.8 per cent, were males and 109, or 16,2 per cent, were females. There was no statistical change in the sex incidence during the two five year periods.

AGE INCIDENCE

Table 1 shows the age and sex incidence. There is an impression that duodenal ulcer occurred in females at a later age than in males. A study of table 1 shows that a slight increase in females in the wartime group occurred in the third decade. However, there is a slight increased incidence of females in the prewar group in the sixth decade. These figures are statistically unimportant. In the whole series of cases, the age incidence in females did not differ from those of males.

AGE OF ONSET OF SYMPTOMS

The majority of persons with duodenal ulcer begin to have symptoms between the ages of 20 and 35. Often there is considerable lapse of time between the onset of the ulcer and the symptoms. A comparative study of the two groups of cases shown in table 2 does not reveal any statistical difference in the age of the patient and the first appearance of symptoms.

DURATION OF THE ULCER

The determination of the duration of the ulcer has always been a problem. In most cases it is difficult to establish the exact time of onset. Often there are few if any signs of the condition before symptoms develop that are severe enough to cause the patient to seek medical attention. Table 3 shows the duration of symptoms in 1,154 cases of duodenal ulcer. It will be noted that there was an increase in the number of cases of short duration in the second five year series.

Table 2.—*Age of Onset of Symptoms*

	Male		Female		Total	
Age, Years	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
Under 10	2	2	0	0	2	2
10-15	4	5	2	3	6	8
16-20	29	52	9	6	38	58
21-25	103	117	15	19	118	136
26-30	102	122	10	21	112	143
31-35	61	99	12	19	73	118
36-40	38	55	15	18	53	73
41-45	22	53	9	10	31	63
46-50	18	31	3	6	21	37
51-55	7	15	5	2	12	17
56-60	6	7	2	2	8	9
61-65	1	4	2	1	3	5
66-70	0	1	0	0	0	1
71-75	1	1	0	1	1	2
76-80	1	0	0	0	1	0
81-85	0	1	1	1	1	2
Totals	395	565	85	109	480	674

In the majority of cases the duration of symptoms ranged from one to ten years, the predominant period being five years. It has often been assumed that symptoms in females are of shorter duration than in males. A comparative study of table 3 reveals no significant statistical change in the duration of symptoms in females as compared with males.

Table 3.—*Duration*

	Male		Female		Total	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
Less than 1 mo.	4	12	1	4	5	16
1 mo. to 3 mo.	20	38	5	7	25	45
3 mo. to 7 mo.	12	31	2	7	14	38
8 mo. to 11 mo.	1	12	1	1	2	13
1 yr. to 3 yr.	57	131	18	27	75	158
4 yr. to 7 yr.	86	129	23	24	109	153
8 yr. to 11 yr.	80	76	17	17	97	93
12 yr. to 15 yr.	53	59	8	12	61	71
16 yr. to 20 yr.	46	34	7	7	53	41
21 yr. to 26 yr.	23	26	0	2	23	28
27 yr. to 34 yr.	9	6	2	1	11	7
35 yr. to 40 yr.	4	11	1	0	5	11
Totals	395	565	85	109	480	674

RECURRENCES

A significant feature of peptic ulceration is the frequent remissions and recurrences. It is important to note whether there were a greater number of recurrences during the war period than in the preceding five years. The actual reasons for the recurrences frequently cannot be determined. In fact, often the digestive symptoms may not indicate the recurrence of the ulcer, but may result from spasm and irritability of the gastrointestinal tract or from other causes. The severity of symptoms following recurrences varied.

TABLE 4.—*Recurrences of Symptoms*

	Male		Female		Total	
Number of Symptomatic Recurrences	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
0	51	144	11	21	62	165
1	135	247	29	51	164	298
2	85	90	18	21	103	111
3	69	49	15	9	84	58
4	24	21	7	5	31	26
5	10	4	2	2	12	6
6	12	6	3	0	15	6
7	1	0	0	0	1	0
8	6	2	0	0	6	2
9	0	0	0	0	0	0
10	2	1	0	0	2	1
11	0	0	0	0	0	0
12	0	1	0	0	0	1
Totals	395	565	85	109	480	674

Information on this topic is difficult to obtain because the disease characteristically shows a periodicity with remissions and recurrences. Nevertheless an attempt was made to determine the number of recurrences of symptoms occurring in the two five year periods. In this study only those cases revealing clearcut recurrences of the ulcer symptoms were considered. The number of symptomatic recurrences of ulcers are charted in table 4.

There were 227 cases of "acute" ulcers, 62 occurring in the first five year series and 165 in the second five year period. In the comparative study of this chart it will be noted that in addition to the increased number of acute ulcers observed during the war period, there was also a significant increase in the first recurrence of symptoms.

ACTIVITY OF THE ULCER

It is not always a simple matter to determine the status of activity of an ulcer, if one depends on the symptoms alone. It is necessary to visualize the ulcer niche or other signs in the duodenal bulb, such as hyperirritability, sensitiveness or tenderness on palpation, spasticity or edema and fragmentation. Besides these observations, the presence of occult blood in the stools is of paramount importance. In this study the activity of the ulcer was based on the roentgen observations. Of the 480 cases of duodenal ulcers observed during the prewar period, 230 were active; of the 674 cases in the war period, 400 were considered to be active. These statistics revealed an increase in the incidence of activity during the war period.

Ulcer Niche.—The demonstration of the niche defect in the duodenal bulb is pathognomonic of an active ulceration. It is necessary to reemphasize that the niche is not always observed, even in active ulcerations. In the 1,154 cases of duodenal ulcer, 418 showed a demonstrable niche defect. In the prewar five year period, of 480 cases there were 160 with ulcer niches. Of the 674 cases in the second five year period 258 revealed an ulcer niche defect. It was assumed that during the war period the incidence of activity of the ulcer as indicated by the demonstration of an ulcer niche had increased. A comparison of the statistics revealed a slight increase in the incidence of the ulcer niche defect in the second five year group.

The cases involving an ulcer niche were also studied according to sex, to determine whether niches are more common in females. It is noteworthy that there was a slight increase in the finding of an ulcer niche in females in the second five year group of cases. Table 5 shows the relative incidence in both series.

Hemorrhage.—Massive hematemesis is not very common in duodenal ulcer. In this study a comparison was made of the number of cases of hemorrhage occurring in each five year period. In the 1,154 cases of duodenal ulcer, there were 41 cases of massive hematemesis. In the 480 prewar cases, there were 15, while in the 674 cases of the second five year period it was noted in 26 cases. A comparative study of the two groups of cases revealed little statistical change. There appeared to be a slightly greater incidence of hematemesis in females during the war period.

Black Stools.—The presence of black stools associated with peptic ulcer usually indicates a bleeding ulcer. It was difficult to ascertain the true incidence of tarry stools, because many patients do not observe their stools at defecation. The cases charted in table 5 are those with the recognized passage of black stools. It was of interest to note whether the incidence of black stools increased during the war period. In the 480 prewar cases of duodenal ulcer black stools were observed in 21, while in the 674 cases of duodenal ulcer in the war and postwar period it was observed thirty times.

Obstruction.—Obstruction is encountered in duodenal ulcer as a result of secondary involvement of the pylorus, edema or stricture, or pronounced contracture of the duodenum caused by cicatricial changes. In the 1,154 cases, there were 23 cases of mechanical obstruction. In the prewar group, there were 10 cases; in the wartime cases it occurred thirteen times. It is obvious that there was not any increase in the number of cases of obstruction during the war period.

TABLE 5.—*Signs and Symptoms*

	Male		Female		Total	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
Niches	135	198	25	60	160	258
Active ulcers	189	316	41	84	230	400
Pain	22	115	33	38	55	153
Pain—food relation	183	308	45	59	228	367
Vomiting	56	101	13	18	69	119
Hematemesis	13	16	2	10	15	26
Tarry stools (excluding tarry stools in hematemesis)	18	22	3	8	21	30
Diarrhea	22	48	6	11	28	59
Irritable, spastic colon	119	170	25	41	144	220
Pyloric obstruction	9	13	1	0	10	13

Perforations.—In the entire series of 1,154 cases of duodenal ulcer, only 10 postoperative cases were observed, occurring about equally in both five year periods.

Pain.—Pain in relation to food is one of the most characteristic symptoms of duodenal ulceration. Often there is pain without relation to food. However, pain is not always present in duodenal ulcers. Often there is only mild epigastric distress. In this series of 1,154 cases, 703 presented a history of pain; of these 595 gave the characteristic relation of pain and food.

Vomiting.—Vomiting in duodenal ulcers occurs in over 10 per cent of cases. It is often the first sign of acute onset of ulcer. It frequently occurs as a result of spasm or other pyloric involvement. Vomiting occurred in 186 of the 1,154 cases. In the 480 cases comprising the first five year period it occurred in 69; in the second five year group of 674 cases there were 119 cases of vomiting. A comparison of the two groups revealed a higher incidence of vomiting in the second five year period. This increase is probably due to the greater number of acute cases which occurred during the war.

Diarrhea and Irritable Colon.—Diarrhea, loose bowels or frequent bowel movements are commonly associated with duodenal ulcer. This condition is due to a hyperirritability and hypermotility of the entire gastrointestinal tract. In the 1,154 cases of duodenal ulcer, there were 87 cases of diarrhea, 28 cases occurring in the first five year and 59 in the second five year period. The higher incidence favored the second five year group.

An irritable colon is one of the most common roentgen findings associated with duodenal ulceration. Of the 1,154 cases, 364 cases of spastic or irritable colons were observed. In the prewar series there were 144 cases; during the war period 220 cases. A comparison of the two series slightly favored the war period.

SUMMARY

A comparative statistical study of duodenal ulceration in the civilian population was made of two five year periods, the prewar period from 1937 to 1941, and the period during the war, 1942 to 1946, to determine the effect of the war on duodenal ulceration. The incidence of duodenal ulcer among patients with digestive disturbances in a ten year period was found to be 16 per cent.

This study revealed the following information: 1. A rising trend in the incidence of duodenal ulcer during and immediately after the war amounted to about 4 per cent. 2. The comparison of the age and sex incidence in duodenal ulcers between the prewar and the war period showed no significant statistical change. 3. There was a slight increase in the incidence of cases of less than one year duration in the second five year period. 4. According to the objective roentgen findings for the determination of the activity of the ulcer, there seemed to be an increase in the percentage in the second five year study. 5. There was slight increase in the number of ulcer niches observed roentgenologically in the wartime cases. A slight increase was noted in the number of niches occurring in females in the war group. 6. There was a higher incidence of first recurrences and an increase in the incidence of "acute" ulcers during the war period. 7. In many instances the severity of symptoms seemed to be more pronounced during the war period, because of the increased number of acute ulcers. 8. The complications, obstruction and hemorrhage were not statistically different in the two groups of cases. There was a greater incidence of hematemesis in females during the war period.

2425 Eutaw Place (17).

ONSET OF PEPTIC ULCER IN THE AGED

HENRY A. RAFSKY, M.D.
MICHAEL WEINGARTEN, M.D.
and
CHARLES I. KRIEGER, M.D.
New York

In a previous report of 408 cases of bleeding peptic ulcer,[1] it was observed that 56 or 13.7 per cent were in patients over the age of 60 years. A review of the 56 cases revealed that in 25 of them the first symptoms of ulcer occurred after the fifth decade. A recent study of the gastric secretory response in the aged[2] showed that 12.7 per cent of persons over the age of 65 had hyperchlorhydria. In view of these observations, it was thought of interest to review a series of consecutive hospital admissions for peptic ulcer to determine the incidence of the onset of symptoms in patients over 60 years of age and the clinical course of peptic ulcer in this group.

CLINICAL STUDY

This study is based on a series of 1,800 successive admissions for peptic ulcer to two hospitals from 1941 to 1947. Three hundred and seventy-eight patients or 22.2 per cent were 60 years of age or older on admission. In 106 cases the first symptoms of ulcer occurred after the patients had reached the age of 60 years. After a careful scrutiny of the histories there was some doubt in 25 as to whether there had been any evidence or complaint referable to the ulcer prior to the age of 60. These cases were excluded from this study, leaving 81, or 4.5 per cent of 1,800 patients, in whom the history definitely indicated that the onset of the ulcer symptoms occurred after the fifth decade.

TABLE 1.—*Eighty-One Cases of Peptic Ulcer: Onset After Sixty Years of Age*

Age, Years	Location of Ulcer and Sex Distribution						Total
	Gastric		Duodenal		Both Gastric and Duodenal		
	M	F	M	F	M	F	
60-69	13	7	19	4	4	..	47
70-79	7	5	14	5	2	..	33
Over 80	..	..	1	..	..	..	1
Total	20	12	34	9	6	..	81

The age range of the patients in the 81 cases which form the basis of this study was from 60 to 81 years. Forty-seven patients were between 60 and 69 years, 33 were between 70 and 79 years and 1 patient was 81 years of age. Sixty patients were men and 21 were women. Thirty-two had a gastric ulcer (20 men and 12 women). Forty-three had a duodenal ulcer (34 men and 9 women). Six patients had both gastric and duodenal ulcers (table 1).

Clinical Aspects on Admission.—Pain was the chief complaint in 29 cases of uncomplicated ulcer; nonobstructive vomiting was present in 4 cases; 1 patient's

---

From the Lenox Hill and Beth Israel Hospitals.

Read in a symposium on Peptic Ulcer before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

[1] Rafsky, H. A., and Weingarten, M.: Bleeding Peptic Ulcer: Clinical Appraisal of Various Methods of Treatment Based on a Series of Four Hundred and Eight Cases, J. A. M. A. **118**: 5-9 (Jan. 3) 1942.

[2] Rafsky, H. A., and Weingarten, M.: Gastric Secretory Response in the Aged, Gastroenterology **8**: 348-352 (March) 1947.

only symptom was loss of weight. Three patients were admitted with evidence of hemorrhage and perforation. Twenty-eight patients were admitted for bleeding, 1 of whom also had a mild obstruction. Six patients had a perforated ulcer. In 2 additional cases, perforation of the ulcer occurred after the patient had been admitted for other diseases, 1 for coronary thrombosis and the other for urinary retention. Vomiting due to pyloric obstruction featured the onset in 8 patients. Forty-seven, or 58 per cent of the 81 cases, presented complications of ulcer on admission (table 2).

Gastric Analysis.—A gastric analysis employing an alcohol or Ewald test meal was performed in 40 cases. The results have been listed in table 3. It is of interest to note that hyperchlorhydria was found in 22 of the 40 patients who had a gastric analysis.

TABLE 2.—*Clinical Aspects in Eighty-One Cases of Peptic Ulcer: Onset After Sixty Years of Age*

Uncomplicated ulcer (34 cases)			
1. Pain	29		
2. Nonobstructive vomiting	4		
3. Loss of weight	1		
	—		34
Complications (47 cases)			
1. Hemorrhage	27		
(a) Hemorrhage with mild obstruction	1		
	—	28	
2. Perforation			
(a) On admission	6		
(1) Perforation with hemorrhage	3		
(b) After admission			
(1) For coronary thrombosis	1		
(2) For urinary retention	1		
	—	11	
3. Pyloric obstruction		8	
		—	47
			—
Total			81*

* Forty-seven of 81 patients presented complications of ulcer.

TABLE 3.—*Gastric Analysis (Forty Cases) Alcohol or Ewald Test Meal*

	Type of Ulcer			
Gastric Acidity	Gastric	Duodenal	Both Gastric and Duodenal	Total
Hypoacidity, up to 25 units	4	2	1	7
Normal acidity, up to 50 units	7	4	..	11
Hyperacidity, over 50 units	8	13	1	22

DIAGNOSIS.

In patients with a short history of gastric complaints in the advanced age group, the problem of differentiating a benign ulcerating lesion of the stomach from a malignant one often presented difficulties. The criteria employed in arriving at a definite diagnosis were the physical findings, gastric analysis, the clinical course, periodic roentgen examinations, gastroscopic examination whenever possible, disappearance of occult blood from the stools and operative and pathologic diagnoses.

In view of the complicating diseases present in many of the older patients, gastroscopy was not always feasible. This examination was performed in 13 cases. In 8 cases of gastric ulcer there was agreement between the roentgenologic and gastroscopic opinions. In 2 cases of duodenal ulcer the endoscopic examination of the stomach did not reveal any pathologic changes. In 1 case of gastric ulcer the lesion was seen on roentgen examination but not by the gastroscopist. In 1 patient, a duodenal ulcer with a crater was found roentgenologically, and gastroscopically an additional gastric ulcer of the posterior wall was observed. In another case both the roentgen and the endoscopic examinations pointed to a probable malignant growth of the lesser curvature; at operation a benign ulcer was found.

In an aged person, the differentiation between an acute episode due to coronary artery disease or to a peptic ulcer, or to the coincidence of both entities, may be difficult. This was illustrated by the following case:

M. H., a man aged 71 years, who gave a four year history of slight pyrosis, was admitted on Dec. 24, 1945, with complaints of epigastric pain radiating to the precordial region and weakness for eight days. Coronary precautions were taken after an electrocardiogram showed evidence of myocardial infarction. On Jan. 8, 1946, a roentgen examination showed an irregular pylorus and a spastic and irregular bulb. On January 16 the epigastric pain became severe, occult blood was noted in the stool and a flat roentgenogram showed free air under the diaphragm. At operation, a perforated gastric ulcer was found.

That the so-called "ulcer diathesis" may be observed in a person past 60 years of age was illustrated by the following case:

J. S., a man aged 68 years with a three year history of epigastric pain, was first admitted in April 1939, with clinical evidence of a perforated ulcer. The roentgen examination showed no air under the diaphragm, but at operation a perforated prepyloric ulcer was found and sutured. In December 1944, at the age of 73, he was readmitted with complaints of epigastric pain for one week and vomiting and hematemesis for two weeks. A roentgen study revealed a duodenal ulcer. He improved on medical therapy. In August 1945, he was again admitted, complaining of dysphagia and vomiting immediately after meals. A roentgenogram showed a funnel-shaped narrowing of the lower half of the esophagus. Esophagoscopy revealed an inflammatory lesion, a biopsy of which, after dilatation, was reported as showing an inflammatory ulcerating lesion of the esophagus.

Elderly patients without previous gastric complaints may have a perforation of an ulcer during the course of another illness, as illustrated by the following case:

A. S., a man aged 63 years, was admitted in May 1946 with acute urinary retention due to a hypertrophied prostate. He had no previous history of dyspepsia. While an intravenous pyelogram was being done, he went into shock. A roentgenogram showed free air under the diaphragm. At operation a perforated prepyloric ulcer was found.

Complicating Diseases.—In many of the patients, other pathologic conditions accompanied the peptic ulcer. Diverticulum of the esophagus was present in 1 patient, peptic ulcer of the esophagus in 1, hiatus hernia in 8, gallbladder disease in 7, Echinococcus cyst of the liver in 1 and diverticulosis and diverticulitis of the colon in 4. Arteriosclerotic heart disease was present in 22 patients, bronchial asthma in 1 and thrombophlebitis of the legs in 2. Diabetes was encountered in 2 patients, syphilis in 2, Paget's disease in 1 and diseases of the prostate gland and bladder in 6. Another patient with an obstructive ulcer had been operated on for carcinoma of the sigmoid eighteen months prior to his admission for ulcer treatment.

TREATMENT

Medical Treatment.—The uncomplicated ulcer in aged patients whose symptoms have their onset after 60 does not as a rule present any special therapeutic problem. However, certain precautions should be observed. The use of atropine or belladonna even in therapeutic doses may precipitate acute glaucoma in older patients. Soluble alkalis should never be employed in patients with impaired renal function, which is often encountered in elderly people. The alumin hydroxide preparations are preferable. The addition of magnesium trisilicate to aluminum hydroxide gel may obviate the occurrence of fecal impaction sometimes observed in old persons when aluminum hydroxide alone is employed.

The serious complication of hemorrhage appears to be more frequent in patients over 60 years of age. The objectives in the treatment of a bleeding ulcer in an elderly patient are the same as in a younger person, namely, to aid in the arrest of bleeding, overcome shock, dehydration and anemia, and prevent recurrence of hemorrhage. It is our experience that persistence with medical treatment and the liberal use of citrated blood transfusions are more often rewarded by the survival of the patient than is surgical treatment. Slow intravenous administration of isotonic solution of sodium chloride and dextrose and citrated transfusions should be used freely to combat anemia and shock without fear that any elevation of blood pressure which may result from these therapeutic measures will have a deleterious effect.

In elderly patients with impaired renal function, the occurrence of extrarenal azotemia adds to the danger of hemorrhage, and persistently high levels of nonprotein nitrogen indicate a bad prognosis. To combat this, fluids must be administered. In doing so, care must be observed to avoid overloading the heart and pulmonary edema. In addition to administering all intravenous fluids slowly, a good guide is to restrict the parenteral intake of fluid to about 3 per cent of the body weight in twenty-four hours.

The Meulengracht regimen in our opinion should not be used in the treatment of hemorrhage in elderly patients with ulcer. We have observed recurrence of bleeding, severe pain and perforation during the course of such treatment. The dietetic regimen which was employed has been outlined previously [1] and has been referred to as the "combined method." It consists of withholding all oral feedings and supplying fluids and vitamins parenterally until bleeding has ceased. If small feedings are then well tolerated, the food intake is rapidly increased.

The barbiturates are preferable to morphine as sedatives. Morphine employed during a hemorrhage may interfere with the vasomotor reactions and intensify the circulatory inadequacy.[3]

Surgical Treatment.—Nineteen of the 81 patients were operated on. In 11 a perforation was sutured. Six of these patients died. Three cases of pyloric obstruction did not yield to medical treatment. A subtotal gastric resection was performed in one, a posterior gastroenterostomy in another and a vagotomy and gastroenterostomy in the third case. All 3 patients survived. Five patients had uncomplicated ulcer refractory to medical treatment. A subtotal gastric resection was performed in 3 of them, 1 of whom died; in another patient, a posterior gastroenterostomy was done; in the fifth case, the operation could not be concluded because the patient went into shock during the procedure. She recovered and on a subsequent admission showed evidence of obstruction but refused further surgical treatment. Of the 28 cases of hemorrhage encountered in this series, 11 involved bleeding of grades 3 and 4; none of the cases of bleeding came to surgery.

Perforation of a peptic ulcer requires immediate surgical intervention, irrespective of the age of the patient. Clinical experience has shown that the mortality rate in these cases depends largely on the time which elapses between the perforation and the operation and the amount of gastric contents at the time of rupture. This holds true especially in elderly patients, who as a rule are not good surgical risks.

Pyloric obstruction due to ulcer in older patients often responds to medical measures. Gastric lavage, antispasmodics, a liquid and semiliquid diet were employed to determine whether the stenosis was of an inflammatory or cicatricial origin. In the latter type, surgical treatment was advised. In either case, dehydration and hypoproteinemia must be corrected and the chemical balance restored.

In those cases in which there is bleeding from an ulcer or an erosion in a hiatus hernia, phrenic crushing is sometimes performed after the cessation of hemorrhage. This procedure may prevent recurrent bleeding.[4]

In the treatment of elderly subjects it is advisable to have the period of bed rest as short as possible. Early ambulation helps to prevent pulmonary embolism.

MORTALITY

Thirteen patients, or 16 per cent of the 81, died. Of 11 patients with perforation, all of whom were operated on, 6 or 55 per cent succumbed. Of 28 patients with hemorrhage, all of whom were treated medically, 3 or 10.7 per cent died. Of 29 patients without complications of ulcer, 1 died after a subtotal resection, 1 from a carcinoma of the prostate and hemiplegia, 1 from a coronary occlusion, and 1 from pulmonary embolism secondary to thrombophlebitis of the legs. Of the 19 patients operated on, 7 died, a mortality of 36.8 per cent.

COMMENT

The increase in the number of persons over 60 years of age in the general population has led to a greater interest in all disease processes which affect them. It seems worth while to emphasize the not infrequent onset of peptic ulcer in the aged. The necessity of considering peptic ulcer and its complications in elderly persons in the differential diagnosis of abdominal complaints of relatively short duration is obvious.

Complications of ulcer seem to occur more frequently in those persons with an onset of symptoms late in life. The general incidence of hemorrhage in patients of all ages hospitalized for peptic ulcer is approximately 30 per cent. In a series reported by Keefer and McKell of aged patients with ulcer, hemorrhage was present in 31 per cent.[5] In the group of 81 cases which is the basis of this study, hemorrhage was present in 38 per cent.

None of the patients with hemorrhage uncomplicated by perforation were operated on. It is interesting to compare the mortality of 10.7 per cent in this group of bleeding ulcers in patients over 60 years of age, observed between 1941 and 1947, with that of a group of patients, over 50 years of age, treated from 1927 to

---

[3] Drew, J. H.; Dripps, R. D., and Comroe, J. H., Jr.: Clinical Studies of Morphine, Anesthesiology 7: 44-61 (Jan.) 1946.

[4] Pickhardt, O. C.: Hiatus Hernia in Older People, to be published.

[5] Keefer, E. D., and McKell, D. McC., Jr.: Peptic Ulcer in the Aged, J. A. M. A. 133: 1055-1060 (April 12) 1947.

1941.[1] In the latter group there was a 16.4 per cent mortality in those patients treated by various medical regimens and a 20 per cent mortality in those treated surgically. We attribute the improvement in the survival rate in the group now being reported to the increased and unsparing use of citrated blood transfusions and intravenous infusions which serve to keep the patient alive until healing of the ulcer and cessation of bleeding can take place. Hypertension is no contraindication to the use of transfusions, when indicated, and hypertension in a patient with bleeding ulcer has little effect on the severity of the bleeding. Our present experience corroborated this previously recorded observation.[6] Secondary hemorrhage in elderly persons does not necessarily constitute a definite indication for surgical intervention. We have seen elderly patients who had severe secondary hemorrhage and who survived with medical treatment. Any routine employment of surgery in the older group of patients with bleeding ulcer would probably result in a higher mortality than that which occurs with persistence in medical measures. However, if a patient has a hemorrhage which is so rapid and profuse as to produce a state of impending shock, massive transfusions and surgery should be employed immediately.

It has been stated that perforation of an ulcer rarely occurs in a patient over 50 years of age.[7] In the present series, perforation occurred in 11 patients or 13.8 per cent. Some of the perforations occurred in elderly patients without any previous gastric complaints. The incidence of perforation as a complication of hemorrhage in ulcer is generally considered to be 1 per cent. In this series, 10 per cent of the patients who had a hemorrhage also had a perforation. Our experience would indicate that perforation of peptic ulcer is not uncommon in older patients.

Pyloric obstruction is another complication which is not infrequently seen in elderly patients with peptic ulcer. It may be the first indication of the presence of an ulcer. Pyloric obstruction in an older patient with a short history of gastric complaints and loss of weight presents an especially difficult diagnostic problem in differentiating a benign from a malignant lesion. Obstruction due to ulcer in an elderly patient often responds to medical treatment. In younger patients, a severe degree of organic obstruction may at times be compatible with relative comfort. Elderly persons suffering from cicatricial pyloric stenosis are much more susceptible to alkalosis, hypochloremia and azotemia. Therefore, if these patients do not respond readily to medical treatment, surgical treatment is more imperative, and should be performed after the chemical imbalance has been corrected.

SUMMARY

In a series of 1,800 successive hospital admissions for peptic ulcer, 81, or 4.5 per cent of the patients, had no symptoms referable to the ulcer prior to reaching the age of 60 years. Fifty-eight per cent of the 81 patients had complications of ulcer on admission. Hemorrhage was the chief complaint in 38 per cent of the cases. The mortality from hemorrhage in this series was 10.7 per cent. No case of bleeding was treated surgically. Liberal use of slowly administered infusions and transfusions are advocated, when necessary, in the treatment of hemorrhage due to ulcer in the aged. Hypertension is not a contraindication to these measures.

Perforation was the initial evidence of ulcer in 13.8 per cent of the cases, and the mortality of this complication was high. Pyloric obstruction due to ulcer in the aged often yields to medical treatment. Surgical treatment is imperative in those patients whose obstruction is refractory to medical therapy.

Complicating diseases play an important role in the prognosis of ulcer in elderly patients.

79 East Seventy-Ninth Street (21).

---

[6] *Rafsky, H. A., and Weingarten, M.: Effect of Hypertension on* Prognosis of Bleeding Peptic Ulcer, Rev. Gastroenterol. **11:** 93-101 (March-April) 1944.

[7] Bockus, H. L.: Gastroenterology, Philadelphia, W. B. Saunders Company, 1943, vol. 1, p. 503.

RESULTS OF VAGUS NERVE RESECTIONS IN TREATMENT OF PEPTIC ULCER

An Anatomic, Physiologic and Clinical Study

WALTMAN WALTERS, M.D.
HAROLD A. NEIBLING, M.D.
WILLIAM F. BRADLEY, M.D.
JOHN T. SMALL, M.D.
and
JAMES W. WILSON, M.D.
Rochester, Minn.

We have on previous occasions reported in detail our studies on the variations in the anatomy of the vagus nerves and the early results which have followed the performance of vagus nerve resections for gastroduodenal and jejunal ulceration, first in a group of 66 cases and later in a group of 83 cases which included the original 66 cases.[1]

In the second report, as well as in the first, the cases were divided into two series: (1) those (40 cases) of one of us (W.W.), in which the approach was through the abdomen in all but 1 case and (2) those (43 cases) in which the operation was performed by other surgeons at the Mayo Clinic (table 1). Nineteen of the forty-three operations were performed transthoracically.

Since the results of operation in the 83 cases have already been reported in detail we have confined ourselves in this brief report to a summary of the results, both favorable and unfavorable, in our cases (series 1), which now total 50, and in the cases of our colleagues (series 2), which now (May 1, 1947) total 68 (table 2).

SERIES 1. (OUR CASES)

In our 50 cases resection of the vagus nerves has been performed in 34 cases of duodenal ulcer, in 7 cases of gastrojejunal ulcer and in 9 cases of gastric ulcer.

From the Division of Surgery, Mayo Clinic (Dr. Walters) and the Mayo Foundation (Dr. Neibling, Fellow in Surgery; Dr. Bradley, Fellow in Medicine; Dr. Small, Fellow in Surgery, and Dr. Wilson, Fellow in Surgery).

Read in a symposium on Peptic Ulcer before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

[1] Bradley, W. F.; Small, J. T.; Wilson, J. W., and Walters, W.: Anatomic Considerations of Gastric Neurectomy, J. A. M. A. **133:** 459-461 (Feb. 15) 1947. Walters, W.; Bradley, W. F.; Small, J. T.; Wilson, J. W., and Neibling, H. A.: Anatomic Distribution of the Vagus Nerves at the Lower End of the Esophagus; Relation to Gastric Neurectomy for Ulcer, Arch. Surg. **55:** 400-422 (Oct.) 1947. Walters, W.; Neibling, H. A.; Bradley, W. F.; Small, J. T., and Wilson, J. W.: Gastric Neurectomy: Anatomic and Physiologic Studies with Favorable and Unfavorable Results in the Treatment of Peptic Ulcer, Arch. Surg. **55:** 151-163 (Aug.) 1947; A Study of the Results, Both Favorable and Unfavorable, of Section of the Vagi Nerves in the Treatment of Peptic [illegible] 679-686 (Nov.) 1947; Gastric Neurectomy for [illegible] Ulceration: An Anatomic and Clinical Study, ibid [illegible]

DUODENAL ULCER

First of all it must be remembered that the patients with duodenal ulcer selected for vagus nerve resections were chosen from that group of approximately 12 per cent of all patients with duodenal ulcer seen at the clinic in whom an operation of some type was thought to be necessary since nonsurgical methods had failed. This would comprise those whom we formerly would have considered suitable for partial gastrectomy. This rate of 12 per cent contrasts with that of 37.6 per cent of patients in whom operations for duodenal ulcer were performed in 1928 (table 3).

In 21.2 per cent of the patients operated on in 1928, the ulcer was small and nonobstructive and the duodenum was movable enough so that excision of the ulcer with pyloroplastic procedures was carried out. Much is made of this fact because with a decrease in the percentage of patients operated on for duodenal ulcer, most such patients now are found to have at operation large, obstructing, perforating or hemorrhagic duodenal ulcers; in such patients it would be necessary to perform an associated drainage operation of the stomach to prevent gastric retention if vagotomy were performed. Thus, in our series of 50 cases, in only 19 was it thought advisable to do a vagus nerve resection without some other simultaneous operation of the stomach, such as either a drainage operation to prevent postoperative gastric stasis or excision of a gastric ulcerating lesion; likewise, in our colleagues' series, in 30 of 68 cases vagotomy was done without other procedure on the stomach.

TABLE 1.—*Comparative Statistics of Reported Vagotomies to February 1947*

		Duodenal Ulcer		Gastrojejunal Ulcer		Gastric Ulcer	
	Cases	Cases	%	Cases	%	Cases	%
Dragstedt *	170	147	86	15	9	8	5
Mayo Clinic							
Series 1	40	28	70	7	18	5	12
Series 2	43	26	60	17	40	0	0
Total	83	54	65	24	29	5	6
Grimson †	57	40	70	10	18	7	12
Moore ‡	74	57	77	16	22	1	1
Colp §	33	20	61	12	36	1	3

* Harper, P. V., and Dragstedt, L. R.: Arch. Surg. 55: 141, 1947.
† Grimson, K. S.; Baylin, G. J.; Taylor, H. M.; Hesser, F. H., and Rundles, R. W.: Arch. Surg. 55: 175, 1947.
‡ Moore, F. D.: Ann. Surg. 126: 661, 1947.
§ Colp, R.: Unpublished data.

In discussing the results of the operation we can accept the fact that a complete vagus nerve resection relieves the pain of ulcer and that objectively there is a decided reduction of gastric acidity to an achlorhydric state in more than 50 per cent of cases. These results, however, are both secured at the expense of tonicity of the stomach: dilatation of the stomach occurs which, as a result of the retention of food within it, may produce troublesome symptoms, such as frequent belching of foul gas, a feeling of epigastric fulness and occasionally nausea, vomiting and diarrhea. It would appear that the results of vagotomy should be best in those cases of nonobstructing duodenal ulcer, but in our experience relatively few of the patients with duodenal ulcer who are operated on at the clinic have nonobstructing ulcers.

Vagotomy Only.—In only 10 [2] of the 34 patients with duodenal ulcers operated on by us has vagotomy been done without other simultaneous gastric operations (table 4). Six of these 10 patients had complete relief of symptoms, some up to a year after operation. Despite this, roentgenologic examination on dismissal showed a duodenal ulcer without crater in 4 patients, 2 of whom gave a positive reaction to the insulin test (table 5). An atonic dilated stomach in 3 patients was present when they were dismissed from the clinic. Gastric acidity was reduced in 5 of the 6 cases; achlorhydria developed in 2 of these 5 patients despite a positive reaction to the insulin test in 1 of the 2. The sixth patient had no preoperative studies of gastric acidity, and postoperatively he gave a positive reaction to the insulin test.

TABLE 2.—*Gastric Neurectomy: All Cases to May 1, 1947*

		Operation Performed for		
Operation	Total	Duodenal Ulcer	Gastrojejunal Ulcer	Gastric Ulcer
Gastric neurectomy only				
Series 1	17	10	2	5
Series 2	31	8	23	0
Gastric neurectomy with gastroenterostomy				
Series 1	22	22	..	..
Series 2	25	25	..	..
Gastric neurectomy with excision of ulcer				
Series 1	11	2	5	4
Series 2	12	4	7	1
Total	118	71	37	10

Three of the 10 patients had no distress from the ulcer but did have fulness and bloating, and 1 of the 3 was having diarrhea six months postoperatively. In 2 of these 3 patients achlorhydria occurred and the reaction to the insulin test was negative. The third patient had no reduction in gastric acidity and gave a positive reaction to the insulin test; this patient early had fulness and bloating. When last heard from seven months postoperatively he had no distress and had gained 10 pounds (4.5 Kg.).

One of the 10 patients died one hour postoperatively of coronary insufficiency.

TABLE 3.—*Patients with Duodenal Ulcer, Mayo Clinic*

		Operated on								
		Total		Gastro-enterostomy		Resection		Pyloroplasty		
Year	Patients Examined	No.	%*	No.	%†	No.	%†	No.	%†	Other No.
1928	2,207	830	37.6	567	68.3	32	3.9	176	21.2	55
1945	3,250	417	12.8	92	22.1	307	73.6	3	0.7	15

* Percentage of total patients examined.
† Percentage of patients operated on.

Vagotomy Associated with Other Gastric Operations.—Sixteen of 22 patients who underwent vagotomy associated with gastroenterostomy had good results despite the fact that 7 had some fulness after meals in the early postoperative period and 1 of the 7 had a

---

2. Three of the 10 had associated cholecystectomy at the time of gastric neurectomy. One of these also underwent appendectomy. In a fourth case biopsy of a small area of mesentery revealed fat necrosis.

physiologic obstruction for twenty-six days which necessitated jejunojejunostomy. This latter patient had a reduction in gastric acidity but no insulin tests were made. He was in excellent health eight months postoperatively. Of the 15 other patients, 7 had evidence of atonicity on roentgenologic examination. Three of these showed evidence of gastroenteric stomas which did not function well although they were open. Five of the 15 patients had achlorhydria, and the others had reduced gastric acidity. Nine of the 15 gave a negative reaction to the insulin test and 1 gave a positive reaction.

Table 4.—*Results of Vagotomy Three Weeks to Eleven Months After Operation (Series 1)*

Ulcer	Cases	Mean Free Acids: Preoperative	Mean Free Acids: Postoperative	Roentgenogram Two and a Half Weeks After Operation: Normal Motility	Atony	Ulcer Present	Ulcer Distress	Fulness	Gas	Vomiting	Diarrhea	Relief of Symptoms	Deaths
Duodenal:													
Neurectomy only....	10	54	10	1	3	4* (3 weeks postoperative)	0	2	3	0	3	6	1†
Neurectomy and other gastric operations...	24	57	15	6	9	0	..‡	10	3	1	4	8	1§
Gastrojejunal.........	7	30	13.5	2	1	1 jejunitis (3 weeks postoperative ‖)	0	2	2	0	0	6	0
Gastric................	9	38	5.1	3	6¶	2 ‖ (several months postoperative)	2‖	4	1	2	2	4	0

* Two positive insulin reactions.
† Coronary insufficiency one hour after operation.
‡ No insulin test; no reduction in acids.
§ Volvulus of ileum nine months after operation.
¶ One four months, 1 five months and 1 seven months after operation.
‖ Negative insulin reactions.

Table 5.—*Persistence or Recurrence of Ulceration After Vagotomy in Series 1 (Fifty Cases) and Series 2 (Sixty-Eight Cases)*

Type of Ulcer	Series	Cases *	Postoperative Data: Months After Operation	Clinical Findings	Gastric Acids	Insulin Test
Duodenal....................	1	3	3 to 4 weeks	No distress	2 reduced	2 negative, 1 positive
		1	8	No distress	Reduced	1 positive
	2	1	3	Occasional ulcer distress	Reduced	None
Gastrojejunal................	1	1	1	No distress	20 total, 6 free †	Negative
	2	1	6	Several hemorrhages	40 total, 28 free †	Negative
		2	3	No distress (ulcer by roentgenogram)	Reduced	None
		2	3 to 4 weeks	No distress (jejunitis by roentgenogram)	Reduced	Negative
Gastric......................	1	2	6	Ulcer distress	Temporary achlorhydria	Negative

* Patients with persistence or recurrence of ulcer. † Preoperative acids not available.

Four patients had mild symptoms of diarrhea with bowels moving loosely two to four times a day. In 3 of these relative achlorhydria developed and the reaction to the insulin test was negative. One had no postoperative studies of gastric acidity.

Two patients had early retention of gastric contents and later had bad results. One of these has continued to have distress from ulcer with gas and fulness. No insulin test was done in this case and the patient did not have a reduction of gastric acidity; apparently not all of the nerve fibers were resected. The second patient had such a severe postoperative ileus that mechanical obstruction was suspected, but this was not found at reexploration seven days after vagotomy and gastroenterostomy. This patient died nine months postoperatively, at home, after being operated on for volvulus of the terminal ileum and mesenteric thrombosis.

Two patients had other gastric operations, one a partial gastric resection and the other an excision of ulcer and pyloroplasty. Both of these had relief of the distress from ulcer; the results of the insulin test were negative and there was achlorhydria.

GASTROJEJUNAL ULCER

There were 7 cases of gastrojejunal or postoperative gastroduodenal ulceration. All of these patients gave histories of intractable pain of long duration. Five of these patients had had gastroenterostomy. One patient had had a Devine exclusion type of partial gastrectomy. The remaining one had had a Billroth I type of gastric resection.

Five patients of the group, in addition to vagotomy, underwent removal of the gastroenteric stoma and the jejunal ulcer; in 2 of these pyloroplasty was also done because of the stenosis produced by the duodenal ulcer which had healed after gastroenterostomy. In 1 patient an anterior Polya-Balfour gastric resection was done, in addition to removal of the gastroenteric stoma and the ulcer.

In 4 of the 7 cases results were excellent, with relief of pain and with no complaints of fulness, bloating, nausea or diarrhea. The other 3 patients had what might be considered satisfactory results. One of these patients complained of a short spell of anorexia and loss of weight after being perfectly well for six weeks postoperatively. Two had minor complaints of fulness after meals which had lasted for several weeks in one and was still present at the end of six months in the other.

Studies of gastric acidity in these 7 patients revealed a mean reduction from 30 units of free hydrochloric acid preoperatively to 13.5 units postoperatively (Töpfer's method); 4 patients of the 7 had achlorhydria postoperatively and are considered in obtaining this average. Insulin tests were done in 6 with negative results.

When the severity and prolonged nature of the illness of these patients are considered, the results of vagotomy with removal of the gastrojejunal ulceration and the gastroenteric stoma appeared to be satisfactory as far as early results are concerned. It must be remembered, however, that equally good results occur in 50 per cent of cases when removal of the gastrojejunal ulcer and the gastroenteric stoma is done without vagotomy.

Disturbances of motility appeared in 2 patients in this group and later complications such as recurring duodenal ulceration were not encountered.

GASTRIC ULCER

In spite of the fact that the operation of subtotal gastrectomy in the treatment of chronic gastric ulcer has given excellent results with a very low mortality, we felt it advisable to perform vagus nerve resection in a small series of patients with different-sized gastric ulcers in order to determine the results of the operation and to compare them with the results in patients who had undergone partial gastrectomy for ulcer.

Nine patients were chosen for the procedure. In 4 of these patients the gastric ulcers were relatively large, the diameter varying from 1.5 to 5 cm. In addition to the performance of a vagus nerve resection, openings were made in the stomach in 4 cases, and after gross examination the ulcers in 2 cases were removed for microscopic examination. In the remaining 5 cases the ulcers, although chronic in type and small, were neither removed nor subjected to biopsy. Relief of the pain from the ulcer was obtained in 7 of the 9 patients despite the fact that 3 of the 7 had positive reactions to the insulin test; 2 patients did not have achlorhydria but both had reduced acidity and 1 had a positive reaction to the insulin test.

In 2 patients the ulcer persisted, as evidenced by the roentgenographic findings, and produced pain. Both of these patients gave repeatedly negative reactions to the insulin test, indicating that all branches of the vagi had been cut. One of these patients had a course of intensive (six months) medical management after complete vagotomy without effect on the ulcer. Partial gastrectomy with removal of a large benign perforating gastric ulcer 2.5 cm. in diameter was done six months after vagotomy. In this case, one month after operation roentgenologic examination of the stomach gave negative results; an adequate, free anastomosis was present and there was no gastric distress. The other patient, reexamined two and one-half months postoperatively, had a questionable area of ulceration high on the lesser curvature on roentgenologic examination. He has had occasional slight distress from ulcer, with considerable bloating and gas. In a communication seven months after operation he stated that he had vomited occasionally and that he had some diarrhea. Insulin tests on this patient have also given consistently negative results.

Motility was studied clinically, roentgenoscopically and roentgenographically. In 3 of the 9 patients no evidence of disturbance of motility was obtained by either method of study. One of these 3 patients gave a positive reaction to the insulin test. The remaining 6 patients showed evidence of an atonic dilated stomach, and it was in this group that the patients complained of fulness, bloating and belching of foul-smelling gas. Two of the patients also had some vomiting and diarrhea. One of the patients in whom these symptoms continued for seven months subsequent to operation was started on a course of carbaminoyl-beta-methylcholine chloride ("urecholine") as recommended by Machella, Hodges and Lorber,[3] with roentgenographic evidence of immediate improvement of gastric motility but with little evidence of clinical benefit.

In this group of 9 patients there was a decided reduction of gastric acidity from a mean preoperative value of 38 units of free hydrochloric acid to 5.1 units postoperatively. In 6 of the patients achlorhydria was obtained. Of the 3 patients in whom achlorhydria was not obtained, 2 gave a negative reaction to the insulin test and 1 reacted positively. Two patients who had no free fasting hydrochloric acid two weeks after operation were found to have a return of small amounts of free hydrochloric acid when observed one month and three months later, respectively.

In general, in the group of 9 patients with gastric ulcer 7 obtained relief of pain. All had reduction of gastric acidity but 3 had prolonged disturbances of motility. One ulcer failed to heal and one ulcer recurred despite apparent complete section of the vagus nerves, as demonstrated by clinical and laboratory tests, including the insulin test.

SUMMARY OF RESULTS IN SERIES 1

Vagotomy Alone.—In our series of 50 cases to date vagotomy alone was done without other procedure in 10 patients with duodenal ulcer, in 2 with gastrojejunal ulcer and in 5 with gastric ulcer. All of these patients obtained relief of the pain caused by ulcer. Three of the 10 patients with duodenal ulcer and 1 of the 5 with gastric ulcer had disturbances of motility. One patient with duodenal ulcer and 1 with gastric ulcer each gave a positive reaction to one insulin test postoperatively, and neither had a reduction of gastric acidity. Four of the patients with duodenal ulcer were reported at dismissal (approximately two and a half to three weeks after operation) as still having visible ulcers on roentgenologic examination. Two of these patients gave a positive reaction to the insulin test.

Vagotomy with Other Gastric Operation.—Vagotomy with a simultaneous gastric operation was done in 24 patients with duodenal ulcer, in 5 with gastrojejunal ulcer and in 4 with gastric ulcer. In 23 of the 24 patients with duodenal ulcer, in all 5 of the patients with gastrojejunal ulcer and in 2 of the 4 patients with gastric ulcer, relief of distress from the ulcer was obtained. Ulceration recurred in 1 patient with gastric ulcer in whom subtotal gastrectomy was necessary six months later, and in another the gastric ulcer failed to heal. Both had pronounced reductions of gastric acidity and repeatedly negative reactions to the insulin test after vagotomy. Six of the 24 patients with duodenal ulcer who had associated gastroenterostomy, 2 of 5 patients with gastrojejunal ulcer and 3 of 4 patients with gastric ulcer all had moderate to marked disturbances of motility. Of these, 1 of the patients with duodenal ulcer who reacted negatively to the insulin test and 1 patient with gastrojejunal ulcer who reacted positively to the insulin test had no reduction in gastric acidity.

---

[3] Machella, T. E.; Hodges, H. H., and Lorber, S. H.: The Restoration of Gastric Motility by Urethane of β-Methyl Choline After Section of the Vagus Nerves for Peptic Ulcer, Gastroenterology 8:36-51 (Jan.) 1947.

The total incidence and the incidence by type of lesion for motility disturbances are given in tables 6 and 7 respectively.

SERIES 2 (COLLEAGUES' CASES)

The data presented in series 2 were obtained by a review of the records of all the other patients operated on at the Mayo Clinic over the same period as those personally operated on and studied by one of us (W. W., series 1). They are presented in order to complete the record of the results of vagotomy in the treatment of duodenal, gastrojejunal and gastric ulcer at the Mayo Clinic until May 1, 1947 (table 8). As both are factual reports no conclusions will be drawn.

TABLE 6.—*Motility Disturbances After Vagotomy (Fulness, Gas, Belching, Nausea, Vomiting, Diarrhea): Incidence by Type of Lesion*

Type of Ulcer	Cases at Stated Intervals After Operation			
	Dismissal	3 Mo.	6 Mo.	9 Mo. or Longer
Series 1 (Fifty Cases)				
Duodenal	15	4	3	4
Gastrojejunal	1	..	2	1
Gastric	4	1	2	1
Total	20	5	7	6
Series 2 (Sixty-Eight Cases)				
Duodenal	10	3	..	10
Gastrojejunal	6	3	1	2
Gastric	..	..	..	..
Total	16	6	1	12

TABLE 7.—*Motility Disturbances After Vagotomy (Fulness, Gas, Belching, Nausea, Vomiting, Diarrhea): Total Incidence*

	Cases	Percentage of Patients at Stated Intervals After Operation			
		Dismissal	3 Mo.	6 Mo.	9 Mo. or Longer
Series 1	50	40	10	14	12
Series 2	68	24	9	1.5	18
Total	118	31	9	7	15

DUODENAL ULCER

Vagotomy Only.—In 8 cases of duodenal ulcer no other operation was performed; 5 of these were done transthoracically and 3 abdominally.

Transthoracic Approach: Four of the 8 patients who underwent vagotomy only had good results although 2 had some trouble immediately after operation. Both of these had retention of food and fluid which, in 1 of them, necessitated gastroenterostomy for obstructive manifestations two months after vagotomy. This patient had a reduction of acidity and gave a negative reaction to the insulin test. The other patient had a severe episode of pain fourteen days postoperatively and was thought possibly to have an acute perforation of the duodenal ulcer. The pain gradually subsided. He had also obtained achlorhydria from the operation. All 4 patients, some until eleven months after operation, reported that they were feeling well. One patient had early retention with belching and fulness. He had a reduction in gastric acidity, but no insulin test was done. Eight months after operation there was no distress from ulcer but the patient complained of gas and occasional episodes of diarrhea.

Abdominal Approach: One of the 3 patients who underwent vagotomy abdominally was well at dismissal and had had a reduction of gastric acidity. Another patient had retention early postoperatively with intermittent periods of vomiting and diarrhea three months postoperatively. Roentgenologic examination at that time revealed that the duodenal ulcer was still present. The patient had a reduction of acidity but no insulin tests were made. Seven months postoperatively he was still having slight pain after eating, some gas, fulness and bloating. The third patient died suddenly on the fourth postoperative day and, although no necropsy was performed, death was thought to be due to an embolus.

Vagotomy and Associated Gastric Operations for Duodenal Ulcer.—Twenty-five patients with duodenal ulcer underwent vagotomy and gastroenterostomy. Twenty-four of these had relief of the symptoms of ulcer. Eighteen of these 24 patients had no disturbances of motility. Thirteen of the 18 had reduction of gastric acidity, 4 obtaining achlorhydria. Only five insulin tests were made and the reaction in one of these was positive. Six patients had disturbances of motility characterized by epigastric fulness, nausea or diarrhea. Three of these had postoperative studies of acidity and in all the acidity was reduced. No insulin tests were made.

One patient with pronounced postoperative gastric retention and hypoproteinemia died on the fourteenth postoperative day. At necropsy an unexpected perforated duodenal ulcer with subdiaphragmatic abscess was found.

Vagotomy and Pyloroplasty.—Four patients underwent pyloroplasty in addition to vagotomy. All of these obtained relief of distress from ulcer. Two had disturbances of motility of consequence. One of these 2 patients was still complaining of fulness, bloating and diarrhea six months postoperatively; he had lost 10 pounds. The other patient early had similar symptoms which lasted about ten months. For the past six months this patient has been free of such symptoms. Both of these patients had a reduction of gastric acidity, but no insulin tests were made.

GASTROJEJUNAL ULCER

There were 30 cases of gastrojejunal ulcer in which vagotomy was done. In 3 of these the operation was performed too recently to permit of evaluation. Of the remaining 27 cases, in 15 the operations were done transthoracically and in 12 abdominally.

Transthoracic Approach.—Nine of 15 patients had good results from vagotomy with absence of all symptoms of ulcer. Seven had had gastric resection and 2 had had gastroenterostomy previously. Three of the patients previously subjected to gastric resection had absence of symptoms of ulcer but had mild disturbances of motility. One of these had transient abdominal distention for a few weeks while the other 2 complained of diarrhea which lasted a few weeks and nine months, respectively.

Three patients had unsatisfactory results with recurrence of the symptoms of ulcer. One of these, who had had three previous gastric resections, suffered from a severe gastric hemorrhage a year after vagotomy. In the preceding year since vagotomy he had been in better health than in the previous ten years, with only mild complaints of generalized abdominal discomfort and constipation which he ascribed to his old adhesions. The second patient who had had gastric resection previously showed persistence of the ulcer on roentgenologic examination one month after operation and experienced symptoms of ulcer two months after vagotomy; this patient responded well to medical treatment. The third patient had had repeated exsanguinating hemorrhages after gastroenterostomy and continued to bleed for six months after vagotomy performed elsewhere. Resection was done at the clinic and a large stomal ulcer was found. In only the first of these 3 patients did achlorhydria develop after vagotomy and in only the third patient was an insulin test done which gave positive results. Therefore vagotomy was suspected of being incomplete in 2 patients and inadequate in the third.

One patient dismissed with no complaints had no drop in acidity and gave a positive reaction to the insulin test. Four patients had sufficient postoperative pleural effusion to require aspiration. Three of 8 patients checked roentgenologically after operation showed a low grade ileus of the upper part of the small bowel, in 1 of whom the motility was normal three months later. In 3 cases the ulcer had healed several weeks after operation and in 1 the ulcer had decreased in size.

Abdominal Approach.—In 7 patients the existing anastomosis was not disturbed; 4 of these had had previous gastroenterostomy and 3, gastric resection. Three had obtained good results clinically when dismissed, though in 1 the value for total acidity was still 100 units and for free acidity 80 units. No insulin test was done in the latter case. Three still complained of minor degrees of fulness and diarrhea several months after operation; 1 of these had a malfunctioning enteric stoma with possible persistence of the ulcer, as evidenced on roentgenologic examination several weeks after operation. The remaining patient noticed gas and dizziness when hungry which was relieved by frequent small meals.

One patient underwent disconnection of the enteric stoma as well as vagotomy. He had no drop in gastric acidity, and the insulin test gave positive results. He suffered from retention and vomiting for a month and was still belching foul gas and vomiting occasionally four months later.

One patient underwent disconnection of the enteric stoma and pyloroplasty with good results. One patient had the gastroenteric stoma disconnected and gastroduodenostomy done. He had occasional ulcer distress and fulness but was in good health otherwise. Two patients with gastrojejunocolic fistula had good early results after disconnection of the enteric stoma, closure of the fistula and reestablishment of the enteric stoma, in addition to vagotomy. One died at home three and a half months postoperatively from a coronary occlusion as reported by his home physician.

Table 8.—*Results of Vagotomy Three Weeks to Seventeen Months After Operation (Series 2)*

		Mean Free Acids		Roentgenogram Two and a Half Weeks After Operation									
Ulcer	Cases	Pre-operative	Post-operative	Normal Motility	Atony	Ulcer Present	Ulcer Distress	Fulness	Gas	Vomiting	Diarrhea	Relief of Symptoms	Deaths
Duodenal:													
Vagotomy only	8	58	24	0	2	1*	1* occasionally	2	2*	1	0	5	1†
Vagotomy and other gastric operation	29	51	14	0	1	0	0	8	5	2	3	17	1‡
Gastrojejunal:													
Vagotomy only (abdominal)	7	34	20	0	1	1* (3 wk. postoperative)	0	2	2	0	1	3	0
Vagotomy only (thoracic)	17	41	8	4	1	3* (1 at 3 wk. and 1¶ at 6 mo. postoperative)	1*	1	1	1	1	11	1§
Vagotomy and other gastric operation	6	25	14	0	2	1¶	1*, 1‖	2	2	1	0	4	1#
Gastric	1	60	20	0	0	0	0	0	0	0	0	0	0

* No insulin test.
† Embolus on fourth postoperative day.
‡ Perforation with subdiaphragmatic abscess on fourteenth day.
§ Cerebral hemorrhage on thirteenth postoperative day.
¶ Negative insulin reaction.
‖ Positive insulin reaction.
Coronary occlusion three months after operation; gastrojejunocolic fistula.

GASTRIC ULCER

Only 1 patient with gastric ulcer, which was located in the pyloric ring, was studied in series 2. The ulcer was excised and pyloroplasty was done simultaneously. The patient obtained early relief of symptoms and a reduction in acidity. No insulin tes[illegible]postoperative roentgenogram was made.

RESULTS OF SURGICAL TREATMENT FOR GASTRIC ULCER

SAMUEL F. MARSHALL, M.D.
and
MARK L. WELCH, M.D.*
Boston

Gastric ulcer presents a serious problem in its treatment because of possible malignant degenerative changes arising in a benign ulcer and especially because of the considerable percentage of diagnostic errors made in distinguishing between benign and malignant ulceration of the stomach. We believe it will be of value to discuss these serious aspects of the problem and to present the results of experiences at the Lahey Clinic with the surgical treatment of gastric ulcer over a ten year period (1936 to 1945 inclusive). From this study an attempt will be made to draw some conclusions regarding the management of peptic ulcer arising in the stomach.

This study is in order because in the past we have advised a more or less conservative approach; that is, employment of a medical regimen rather than a surgical procedure in the treatment of the majority of patients with gastric ulcer. Surgical treatment was used only in those cases in which the ulcer failed to heal with medical measures or in those in which there was a reasonable suspicion of malignancy after a period of trial medical management.

It is now our considered opinion that a more positive and aggressive attitude should be accepted in the treatment of gastric ulcer and that this treatment is and should be primarily surgical. Possibly a few patients with acute gastric ulcers should be treated medically and even these should not be observed over a long period unless healing is demonstrated to occur promptly under treatment and is maintained. We wish to state in the beginning that this opinion regarding surgical treatment of all patients with gastric ulcer represents the view of the surgical division and that our division of gastroenterology is not in complete accord with this policy. Furthermore, it is emphasized that all patients with gastric ulcers should be hospitalized during this period of observation and medical treatment and, in the event of nonhealing or if the ulcer defect does not completely disappear, should have immediate operative intervention while they are still confined to the hospital. The treatment of patients with duodenal ulcer presents in many ways such a different problem and the indications for surgical intervention are so well known that one cannot compare in each particular its treatment with the problem of treatment of gastric ulcer. By way of contrast, the treatment of duodenal ulcer is generally recognized to be primarily medical in the majority of cases. Only those patients with presenting complications such as hemorrhage, intractability, perforation and obstruction require operation; in our experience about 8 per cent of duodenal ulcers have required surgical intervention. It is essentially correct to state that the major problem in the treatment of gastric ulcer is so fundamentally that of early detection of gastric carcinoma as well as relieving ulcer distress that the treatment of gastric ulceration must be approached from an entirely different aspect from that of the treatment of duodenal ulcer.

INCIDENCE OF CANCER

Over a period of ten years (1936 to 1945 inclusive), in those cases in which a preoperative diagnosis of benign gastric ulcer has been made, partial resection was carried out on 131 patients. The pathologic study of the removed lesions disclosed carcinoma in 26 of the 131 cases, a diagnostic error of 19.8 per cent in the cases in which operations were done. During this same ten year period, approximately 8,000 patients with peptic ulcer were treated. Of this number 800 had gastric ulcers, a proportion of one gastric ulcer to nine duodenal ulcers; in other words, gastric ulcer occurs much less commonly than duodenal ulcer. Eusterman and Balfour [1] have also stated that in their experience duodenal ulcer is ten times more frequent than gastric ulcer. In the entire group of 800 patients with gastric ulcer treated medically and surgically, there were 26 proved malignant gastric ulcerations, an incidence of proved malignancy of 3.3 per cent for the entire group. This is assuming that none of the patients treated medically proved later to have cancer, a most unlikely possibility. This group of patients not operated on is at present under study in the gastroenterology department. From these data it may be seen that only 131 of 800 patients were treated surgically, a percentage of 16.4. It is only fair to state, however, that all patients in this group of 131 cases, many of whom proved to have malignant ulcers, were ultimately submitted to operation by the gastroenterologist because of failure to heal and because, therefore, gastric cancer could not definitely be ruled out. Yet it is equally pertinent to point out that 17 of this group of 26 patients had been treated one month or longer before decision to operate had finally been arrived at, definite evidence that these patients had been considered to have benign lesions. This trial period of observation over a month we now consider to be too long; decision regarding necessity of surgical intervention should be made much earlier. It would seem likely that some of this group with gastric ulcers in which the treatment was medical must have proved subsequently to have cancer, and only a careful and accurate follow-up of these medically treated patients could disprove this possibility. It is apparent that the problem of diagnosis and treatment of gastric ulcer is a serious one and demands a radically different approach in the treatment and care of these patients.

Allen and Welch [2] reported a similar experience in a study of gastric ulcer. In a group of 277 patients treated medically and surgically, 39, or 14 per cent, were proved to have cancer. Moreover, in a group of 69 patients of his series treated by resection, 30 (43 per cent) were proved histologically to have cancer. Judd and Priestley [3] stated that in their experience the error in preoperative diagnosis of gastric ulcer in differentiating it from gastric carcinoma is approximately 10 per cent.

---

*Now residing in Dallas, Texas.

From the Department of Surgery, The Lahey Clinic.

Read in a symposium on Peptic Ulcer before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947

1. Eusterman, G. B., and Balfour, D. C.: The Stomach and Duodenum, Philadelphia, W. B. Saunders Company, 1935, p. 259.
2. Allen, A. W., and Welch, C. E.: Gastric Ulcer: Significance of This Diagnosis and Its Relationship to Cancer, Ann. Surg. **114**: 498-509 (Oct.) 1941.
3. Judd, E. S., Jr., and Priestley, J. T.: Treatment of Gastric Ulcer, Surg., Gynec. & Obst. **77**: 21-25 (July) 1943.

Holmes and Hampton[4] very properly pointed out that the successful treatment of patients with cancer of the stomach by any method available at the present time depends on early diagnosis more than on any other single factor, and from roentgenologic study it may be most difficult to determine the benign or malignant character of chronic gastric ulceration. They concluded from their studies that any chronic indurated ulcerative lesion within 2.5 cm. of the pylorus should be considered to be carcinoma. They stated that this is equally true of lesions of the greater curvature and probably of most lesions in the cardiac end of the stomach.

Sproull,[5] in a careful review of the literature, found only 10 proved cases of benign chronic ulceration on the greater curvature. At the Lahey Clinic only 2 such benign ulcerations of the greater curvature have been encountered over a much longer period than this study encompasses. Consequently, we believe that no lesion of the greater curvature should ever be treated medically. It is more or less generally accepted that most benign chronic indurated ulcers occur on the lesser curvature of the stomach above the re-entrant angle, but in this location also the same diagnostic difficulty arises in deciding whether the lesion is benign or malignant.

TABLE 1.—*Malignant Ulceration*

	Cases
A. Diagnostic study and management in hospital (6 to 30 days): clinical improvement and decrease in size of ulcer—discharged; returned 4 months to 3 years later with malignant ulcer	7
B. Hospital treatment and Levine tube drainage for pyloric obstruction (3 to 10 days); operation disclosed malignancy...	3
C. Hospital treatment with clinical improvement and decrease in size of ulcer; operation; malignant	1
D. Hospital treatment but no change in size of lesion	7
E. Ambulatory treatment (6 weeks to 3 months); hospital treatment (10 to 15 days); clinical improvement but no change in lesion	2
F. Ambulatory treatment (6 weeks to 6 months): response to treatment not satisfactory; operation	3
G. Ambulatory treatment, with relief; operation for acute perforation of malignant ulcer	1
H. Hospital study—favored benign ulcer; operation because of uncertainty about malignancy	2
Malignant ulcer	26

The response to treatment for ulcer also may be misleading, since patients with malignant ulcers often do well on an ulcer regimen and the lesions appear to become smaller on roentgenologic studies, but never quite disappear. These facts are illustrated in table 1.

In this series of 131 cases of chronic gastric ulceration with the preoperative diagnosis of benign gastric ulcer in which partial resection was finally carried out, there were, as previously stated, 26 malignant lesions and 105 benign gastric ulcers, a percentage of malignant ulcers of 19.8. In none of these cases was the unqualified diagnosis of cancer made; cancer was suspected in some of these patients but all save 2 were treated medically in the hospital or as ambulatory patients. In 2 cases in which the diagnosis was benign ulceration but medical treatment was not given, operation was performed and the lesions proved to be malignant. In table 1 are listed in detail the diagnostic problems and errors. From this table it is apparent that roentgenologic examination and careful study will not definitely determine whether the lesion is malignant. It may also be noted that 9 of the 26 patients demonstrated improvement under a medical regimen and at the same time the ulcer decreased in size, as demonstrated by roentgenologic study, in spite of the fact that it was malignant.

TABLE 2.—*Ages of Patients with Malignant and with Benign Ulcers*

	Malignant Ulcer, Years	Benign Ulcer Years
Average age	51	53
Average age, men	53.7	52.2
Average age, women	42.3	57.3
Oldest patient	79 (male)	82 (female)
Youngest patient	20 (female)	30 (male)

DIFFERENTIATION BETWEEN BENIGN AND MALIGNANT LESIONS

With regard to the sex incidence, 5 patients with malignant ulcerations were women and 21 were men, a ratio of 4 men to 1 woman. In the group of 105 patients with benign ulcers, the proportion was 3 men to 1 woman—28 women to 77 men. It is well known that gastric ulcer occurs more frequently in men than in women. According to Dible,[6] 72 per cent of gastric ulcers are in men; in our benign group, 77 per cent occurred in men. In a report by Walters and Clagett[7] of 272 patients operated on for gastric ulcer, there were 220 men and 52 women, a percentage of 80.9 in men. The Mayo Clinic[1] in another report gave the proportion of men to women as 3.9 to 1.

A study of the age of patients as a determining factor in making a diagnostic distinction between carcinoma and benignity was of little value. The average age of patients with malignant ulcer was 51 and of those with benign ulcer, 53 years (table 2). Sixty-five per cent of those with malignant ulcers were in the age group of 40 to 59 years, whereas 56 per cent of patients with benign lesions fell into the same age group. Moreover, the youth of a patient is not a definite indication that the lesion is benign, as our youngest patient with malignant ulcer was 20 years of age (table 3). The duration of ulcer distress may likewise not be significant, as 1 patient, aged 79 years, with malignant gastric ulcer, had intermittent symptoms of ulcer distress while on an ulcer regimen and diet over a period of seven years.

TABLE 3.—*Age, by Decades of Patients with Malignant and with Benign Ulcers*

Age by Decades, Years	Malignant Ulcer	Benign Ulcer
20-29	1	0
30-39	2	11
40-49	7	27
50-59	10	43
60-69	5	18
70-79	1	6
Total	26	105

It is also of interest to note that gastric ulcer occurs commonly in the older age group; 83.8 per cent of benign ulcers in this series were in patients over 40 years of age, whereas in the malignant group 84.6 per cent were in patients over 40, almost identical figures. Because of this tendency of either benign or malignant ulcers to occur in persons past 40 years of age and because at this age one may be said to begin the so-called cancer age, the physician should from the onset seriously consider that gastric ulcerations may be malignant rather than benign.

---

[4] Holmes, G. W., and Hampton, A. O.: Incidence of Carcinoma in Certain Ulcerating Lesions of the Stomach, J. A. M. A. **99**: 905-907 (Sept. 10) 1932.

[5] Sproull, J.: Discussion of Occurrence of Benign Ulcer on Greater Curvature, Am. J. Roentgenol. **25**: 464-473 (April) 1931.

[6] Dible, J. H.: Pathology of Gastric Ulcer, Surgery **2**: 675-691 (Nov.) 1937.

[7] Walters, W., and Clagett, O. T.: Surgical Treatment of Chronic Gastric Ulcer: Review of Two Hundred and Seventy-Two Cases, Surg., Gynec. & Obst. **71**: 75-79 (July) 1940.

Table 4.—*Duration of Symptoms*

Duration, Years	Malignant Ulcer Cases	Malignant Ulcer Percentage	Benign Ulcer Cases	Benign Ulcer Percentage
Less than 1	7	27	31	29.5
More than 3	12	46	52	49.5
More than 5	7	27	22	21.0
Total	26		105	
Average duration	4.1 years		4.9 years	

Table 5.—*Size of Gastric Ulcer*

	Malignant Ulcer	Benign Ulcer
Average	2.8 cm.	1.9 cm.
Smallest	7.5 mm.	8.0 mm.
Largest	5.0 cm.	7.5 cm.
Larger than 2.5 cm	61.5%	27.0%

Gastric symptoms are likely to be similar in benign and malignant ulceration. Epigastric pain or distress may be characteristic and rather frequent, and, indeed, 89 per cent of our patients with distress arising from malignant ulcers were relieved with food or alkali. In this series little difference was noted in duration of symptoms (table 4). Loss of weight was a prominent feature in both groups of cases. A weight loss of 5 to 50 pounds (2.3 to 22.7 Kg.) was noted in the series of benign ulcers, so that pronounced loss of weight was by no means an indication of cancer.

In general, the size of the ulcer did not present reliable evidence of its being benign or malignant, although the malignant ulcer in the majority of cases was larger (figs. 1 and 2). In this series, 61.5 per cent of the malignant ulcers were larger than 2.5 cm. (table 5), whereas only 27 per cent of the benign gastric ulcers were larger than 2.5 cm.

Table 6.—*Gastric Acidity (Ewald Test Meal)*

	26 Malignant Ulcers, Percentage	105 Benign Ulcers, Percentage
Acidity above 40	27	22.5
Normal, 15-40	61	50.5
Hypoacidity, below 15	4	14.0
Anacidity (without histamine)	8	13.0

Table 7.—*Site of Ulcer in Stomach*

	Malignant Ulcer Cases	Malignant Ulcer Percentage	Benign Ulcer Cases	Benign Ulcer Percentage
Prepyloric	12	46.1	41	39.4
Lesser curvature	10	38.5	63	60.0
Greater curvature	1	3.9	1	0.96
Cardia	3	11.5	0	0
Total	26		105	

Acid determinations were surprisingly parallel in both groups; free hydrochloric acid was present in patients with malignant lesions, and anacidity occurred in those with benign ulcers (table 6). The presence or absence of free acid has proved of no value in distinguishing between malignant and benign ulceration, but anacidity should make the examiner more strongly suspect malignancy.

With regard to the site of origin in the stomach and percentage of chronic ulcerating lesions, one does not find any remarkable differences, as one would expect. Although it is true that the largest group of benign ulcers occurs on the lesser curvature, yet there is a considerable number of benign lesions (39.4 per cent) in the prepyloric area, and this was also noted with regard to malignant ulcers (46.1 per cent, table 7). The only significant factors noted, and these should be emphasized again and again, are that malignant ulcerations can and do occur at any site in the stomach and every gastric ulcer should be regarded as malignant until otherwise proved. One is confronted constantly with similarities in symptoms, acidity, site of ulceration, age, and so forth. Although there are different clinical features suggestive of cancer, yet these differences are not definite enough or constant enough to allow one to establish definite criteria for diagnosis. All that one can say is that any gastric ulcer may be malignant, that all patients with prepyloric lesions, ulcers on the greater curvature and possibly the cardia should have surgical treatment and not medical treatment; again, that all patients with chronic or recurring lesions should have operation, and only an occasional patient with early acute gastric ulceration should have medical treatment. This treatment should not be persisted in if complete healing with relief of all distress is not obtained immediately.

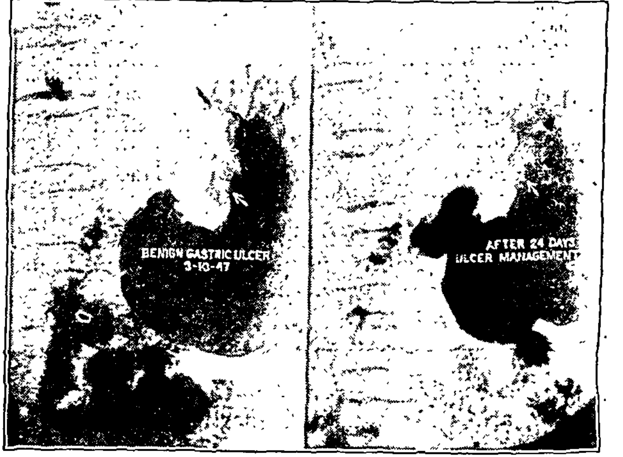


Fig. 1.—Large gastric ulcer occurring in woman, 58 years of age; malignancy suspected because of irregularity and size of defect and because of failure to heal under medical regimen; absence of free hydrochloric acid noted. Operation proved ulcer to be benign.

In the 105 cases of benign ulcers, certain salient features are of special interest. The indications for operation in this group are given in table 8. It is noteworthy that the most frequently occurring indication for operation was suspected cancer, 60.9 per cent in the series of 105 benign cases. Here, again, was incontrovertible evidence that the nature of the lesion so far as it pertains to cancer cannot be determined in a considerable number of cases save by operation and pathologic examination. Roentgen examination, however, will disclose the presence of ulcer but not its nature as relates to possible malignancy. Of 105 cases of benign ulcers the lesion was definitely demonstrated in 102 patients, or 98.1 per cent. Two patients had obstruction at the pylorus but no evidence of prepyloric ulcer, and 1 patient was operated on because of repeated massive hemorrhage. A prepyloric ulcer was found at operation but no ulcer could be demonstrated by roentgenologic examination. The indications for operation in both groups are surprisingly similar.

RESULTS FOLLOWING PARTIAL GASTRECTOMY

The results following partial gastrectomy for gastric ulcer are excellent. Eighty-six per cent of the patients had an absence of free hydrochloric acid after operation. There were no postoperative recurrent ulcers and no obstruction occurred in any case at the gastrojejunal stoma. Recurrent ulcer after an adequate partial resection of the stomach for gastric ulcer is a most infrequent complication. Recurrent ulcer, however, is not uncommon in those cases in which some operation other than radical gastrectomy is done, as is demonstrated by the fact that 12 of the 105 patients with proved benign ulcers had had previous operation (not partial resection) without relief of their symptoms and with definite evidence of recurrent ulcer (table 9).

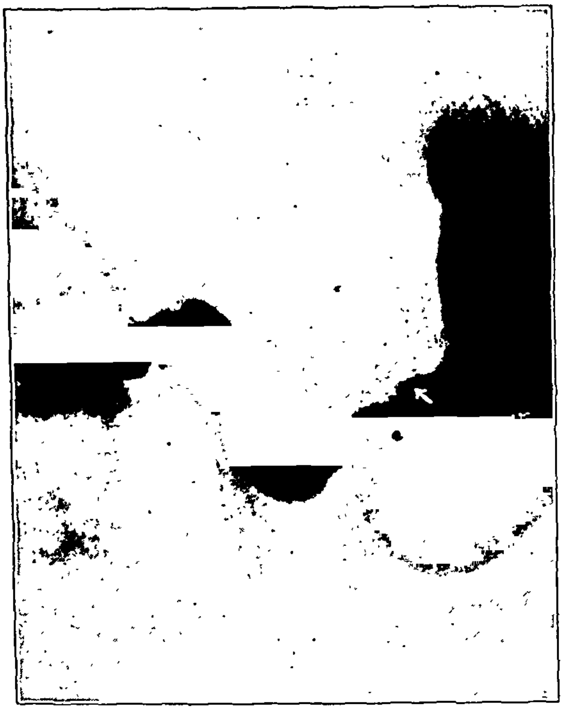


Fig. 2.—Carcinoma of stomach in man, aged 51 years. Small penetrating lesion, 2 cm. in diameter, of lesser curvature; free hydrochloric acid, 60. Operation proved ulcer to be malignant with metastasis to nodes.

Because of the difficulty in determining whether an ulcer is benign or malignant, and this can definitely be determined only by pathologic section, it is our opinion that no attempt should be made to treat any patient with gastric ulceration by resection of the vagus nerves. It is of primary importance that the ulcer be removed, and this preferably by partial resection of the stomach. In view of the fact that gastric ulcers rarely occur after resection there is no need for employing resection of the vagus nerves in addition to resection of the ulcer in this condition. One factor has made for hesitancy in removing certain types of ulcers by resection, and that is the location of the ulcer high on the lesser curvature of the stomach. The surgeon without considerable experience with gastric surgery may consider that the ulcer is situated too high for partial resection and apparently may require total gastrectomy for removal of the ulcer. This difficulty, however, is more apparent than real and in the majority of cases is the result of contraction of the gastrohepatic omentum along the lesser curvature because of fibrosis and infiltration with inflammatory exudate associated with these ulcers high on the lesser curvature. When the stomach has been adequately mobilized and the lesser curvature cleaned properly of all areolar and scar tissue, in the majority of cases there is sufficient normal stomach wall above the ulcer to permit gastrojejunal anastomosis without encroachment on the esophagus. We have seldom seen any particular difficulty arise with resection in such ulcers.

Table 8.—*Immediate Indications for Operation*

	26 Malignant Ulcers		105 Benign Ulcers	
	Cases	Percentage	Cases	Percentage
Suspected malignancy..........	16	61.7	64	60.9
Recurrent ulcer..................	6	23.0	20	19.5
Intractable ulcer................	1	3.8	13	12.0
Pyloric obstruction............	3	11.5	6	5.7
Massive hemorrhage...........	0	....	2	1.9
Total........................	26		105	

In the last analysis, all patients with gastric ulcer are operated on because of inability to rule out cancer.

Walters and Clagett reported that only 1 patient in 162 cases followed after operation for gastric ulcer had had a poor result and this failure followed simple excision of the ulcer.

Only 1 patient in this series of benign ulcers has had recurrent gastric distress after operation. This patient had had a previous closure of a perforated ulcer and later a posterior gastroenterostomy done at the clinic. He was uncooperative, drank and smoked a great deal and refused to adhere to a reasonable diet which was not especially strict. Most patients within a few weeks or months after operation can eat an ordinary, full diet with few restrictions and with no gastric distress. All are relieved of ulcer distress and pain and all are able to return to work usually within three months after operation.

There were 3 deaths following resection, an operative mortality of 2.85 per cent in the group of 105 cases with benign gastric ulcers. Over a period of nine years during which ninety-six consecutive operations were done, however, there were no deaths (Sept. 15, 1936 to Sept. 15, 1945). Prior to September 1936, 1 death occurred from pulmonary embolism; since September 1945, 1 death was the result of pulmonary embolism, and 1 death followed a coronary occlusion.

Table 9.—*Previous Operation in 105 Benign Ulcers*

	Cases
Closure of perforated ulcer..............................	5
Posterior gastroenterostomy	2
Posterior gastroenterostomy and cauterization of ulcer	1
Local excision of ulcer......................................	1
Billroth I	2
Pyloroplasty	1
Total..	12

SUMMARY

Gastric ulcer occurs less frequently than duodenal ulcer, a proportion of 1 to 9. It is more common in men than in women, a ratio of 4 to 1. The majority of ulcers in this series occurred in patients in the fifth decade or later.

In this series of 131 patients operated on with a diagnosis of benign ulcer, there were 26 malignant ulcers, a diagnostic error of 19.8 per cent in those patients having operation. The incidence of error in the entire group of patients with gastric ulcers treated medically and surgically was 3.3 per cent.

Although the majority of malignant gastric ulcerations (61.5 per cent) are larger than 2.5 cm., small ulcers can be and often are found to be malignant. Malignant ulceration may occur anywhere in the stomach but is found more frequently in the prepyloric area, on the greater curvature and in the cardial area. All patients with ulcers arising in these areas should have surgical treatment without further observation or any attempt at medical treatment.

The treatment of all patients with gastric ulcer should primarily be surgical in character; especially should all chronic and recurring ulcerations be resected.

Postoperative results in general are excellent. Recurrent ulcer after resection has not developed in any case. The clinical results are excellent. Mortality can be kept at a minimum, as is illustrated by ninety-six consecutive resections without a fatality.

COMPLICATIONS OF PEPTIC ULCER

With Special Reference to Treatment

HAROLD LINCOLN THOMPSON, M.D., Ph.D.
Los Angeles

Peptic ulcer has been the subject of discussion for nearly half a century. During that time noteworthy advancements in our knowledge have been made. There now is greater appreciation of the psychogenesis and the physiologic pathogenesis of peptic ulcer and thus a better understanding of the basically functional nature of the disorder. Since therapeutic empiricism ended about a generation ago, the principles of treatment have been practiced more in accordance with the scientific method. This applies especially to the complications of peptic ulcer wherein there exists the greatest general agreement as to the merits of medical or the necessity for surgical treatment. Present knowledge of the importance of nutrition, of mental and physical hygiene and a wider application of improved methods of medical and surgical treatment have brought about a relative but not an actual reduction in morbidity. Despite these advances there has not resulted a corresponding decrease either in the incidence of peptic ulcer or of its complications. Thus, in view of the currently high incidence and mortality, it is clear that there has been little real progress in the over-all solution of this problem. Thus abundant room remains for constructive work to be done and discussion must continue.

The complications of peptic ulcer are many and varied. They are the principal cause of mortality. They constitute the chief indications for surgery. A comprehensive clinical outline of the primary complications includes:

1. Perforation
    - Acute, into the peritoneal cavity
    - Subacute, with spontaneous closure by omental plug or adjacent viscus and the "formes frustes" type
    - Chronic penetration into adjacent viscera
2. Hemorrhage
    - Mild or moderately severe
        - Initial
        - Recurrent
    - Acute massive
        - Occurring before age 45
        - Occurring after age 45
3. Obstruction
    - *Acute intermittent, produced by edema and spasm*
        - Obstruction at the pyloric outlet
        - Hourglass obstruction in the body of the stomach
    - *Chronic progressive obstruction resulting from cicatricial stenosis*
        - Occurring at the pyloric outlet
4. Intractability
    - With reference to pain
    - With reference to disability
5. Malignant degeneration
    - Practically limited to gastric ulcer
        - Debatable

This outline does not include the conditions which complicate the complications. The most common secondary complications are malnutrition, anemia, shock, general and local peritonitis, wound infection with or without disruption and those occurring in the respiratory and vascular systems. It should be recalled here that two or more complications may exist simultaneously in a given case. In our recent series of surgically treated cases, multiple primary complications existed in 26 per cent.[1]

Prevailing opinion is that surgical treatment should be limited to the complications of peptic ulcer. Accordingly from a surgical point of view two groups of cases must be distinguished. The first group includes those complications characterized by insidious onset and chronic course in which the indications for surgical treatment are relative. The second group includes those cases which develop suddenly, threaten life and become surgical emergencies wherein the indications for surgical treatment are absolute. In accordance with this distinction, the present discussion will be confined to three common complications of peptic ulcer, namely, pyloric obstruction, acute hemorrhage and acute perforation.

PYLORIC OBSTRUCTION

Pyloric obstruction is a clinical term which refers to certain symptoms resulting from stenosis occurring in the region of the outlet of the stomach. In 118 deaths from peptic ulcer reported by Portis and Jaffe,[2] obstruction was responsible in 7.5 per cent of cases. Two types of obstruction are to be distinguished clinically. First, there is acute transitory functional obstruction which results from spasm or edema or both wherein the treatment is medical. Second, there is chronic pyloric obstruction resulting from organic cicatricial stenosis in which the treatment ultimately is surgical.

Some of the articles in this symposium are to be published in the *Archives of Surgery*.

Read in a symposium on Peptic Ulcer before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

[1] Thompson, H. L., and Prout, H.: Surgical Treatment of Peptic Ulcer, Arch. Surg. **54**: 390-413 (April) 1947.

[2] Portis, S. A., and Jaffe, R. H.: A Study of Peptic Ulcer Based on Necropsy Records, J. A. M. A. **110**: 6-13 (Jan. 1) 1938.

Pyloric obstruction resulting from spasm or edema usually is associated with an active ulcer at or near the pylorus. Intermittently, spasm and edema occur as a direct result of ulcer activity. The obstructive symptoms are of the nature of acute transitory phenomena which respond to gastric decompression, rest and antispasmodics. Recurrences depend on the failure to control ulcer activity. By frequently repeated activity or as a result of healing of the ulcer, this type may gradually merge into the cicatricial variety.

Chronic pyloric obstruction resulting from cicatricial stenosis by contrast is the result of the formation of an excess of scar tissue. It results from prolonged or repeated activity of the ulcer or secondarily to the coexistence of multiple ulcers on adjacent walls of the pylorus or duodenum. In a considerable proportion of cases, the primary symptoms of ulcer long since have vanished and the ulcer is found to have disappeared. Scarring results from nature's attempt at ulcer healing and stenosis occurs from normal contractility of scar tissue. Situated at its narrow outlet, stenosis interferes with the normal emptying mechanism of the stomach.

The symptoms which ensue from either type of obstruction are retention or vomiting of food with ultimate depletion of the general nutrition of the patient. Eventually the patient seeks relief because of his inability to retain or absorb food as reflected in terms of loss of weight and starvation.

The diagnosis of pyloric obstruction is based on a history of peptic ulcer. Analysis of the behavior of the ulcer is helpful in differentiating the two varieties of obstruction. Characteristic ulcer distress usually is present when an active ulcer is responsible for spasm or edema. In chronic obstruction resulting from cicatricial stenosis the distress may have diminished or disappeared as obstruction supervened. In either type, physical examination discloses evidence of loss of weight with depletion of adipose and muscular tissues and may reveal enlargement of the stomach in which peristalsis may be visible. Roentgenologic examination confirms the gastric enlargement and barium is retained to an abnormal degree. The acidity of the gastric content may be low. Finally, differentiation may not be possible until the therapeutic response to gastric decompression, physiologic rest and antispasmodics has been observed.

Treatment.—In obstruction of either type the stomach must be decompressed by continuous suction during a period of bed rest while attention is directed toward the correction of deficiencies induced by protein and chloride depletion, anemia, dehydration, avitaminosis and hyperazotemia. If anemia is severe the transfusion of compatible blood may be necessary. Dehydration, hypochloremia and hyperazotemia may be corrected by the daily administration of 2,500 to 3,500 cc. of isotonic solution of sodium chloride intravenously. If plasma proteins are reduced to the critical level of 5.2 Gm. per hundred cubic centimeters, amino acids should be substituted for one or more liters of saline solution. Vitamin deficiency may be combated by the administration
of massive doses of ascorbic acid and vitamin B
plex. Antispasmodics in the form of belladonna d
tives administered in physiologic doses usually
effectual in stenosis resulting from spasm and
but not in cicatricial stenosis.

In cases of chronic cicatricial stenosis surgical treatment ultimately becomes necessary. Before resorting to surgery preparation of the patient as just described is mandatory. Until recently the simple relief of the mechanical derangement by means of pyloroplasty or gastrojejunostomy was thought to be sufficient. While the immediate results of these palliative measures were excellent, too frequently recurrences of ulcer activity or the appearance of anastomotic ulcer marred the permanency of the result. For this reason recent practice has been to employ subtotal gastrectomy wherein the distal two thirds to four fifths of the stomach are removed. The amount of stomach which it is believed necessary to resect to be effectual varies considerably in different clinics. Occasionally when the ulcer is situated at the pyloric ring, local edema or penetration makes it impractical to dissect the ulcer sufficiently for safe removal. Under these circumstances it may be desirable not to remove the portion of the stomach immediately proximal to the pyloric ring. In such instances, in order to control the humoral phase of gastric secretion, removal of the mucosa from the retained pylorus is mandatory.

My practice has been to resect not less than the distal two thirds of the stomach, to restore continuity by the Hofmeister-Polya procedure and to complete the anastomosis anterior to the colon in the antiperistaltic manner. That is, the divided end of the stomach is closed with sutures for one fourth to one third its diameter and end to side gastrojejunal anastomosis is completed so that the efferent limb of the jejunum is attached to the greater curve of the stomach. If under preoperative decompression the obstructed stomach has not returned fully to its normal size, care must be used in the application of the Hofmeister modification. One must not close too much of the divided end of the stomach lest obstruction ensue when the organ ultimately contracts to its normal size. Colleagues and I favor the Hofmeister modification because in our experience it prevents untoward functional results in two respects. It diminishes the tendency to dumping of food from the stomach into the jejunum and it prevents excessive regurgitation of duodenal juices into the stomach. We obviate the fatal angle simply by sealing off the closed divided end of the stomach by suturing the afferent limb of the jejunum over it.

Section of the vagus nerves, as advanced by Dragstedt, is the most recent development in the surgical treatment of peptic ulcer. The procedure now is in the phase of critical analysis. Dragstedt[3] has advised combining vagotomy with gastrojejunostomy as a safer and less radical procedure than subtotal gastrectomy in the treatment of pyloric obstruction. While the initial results of this procedure appear to be good, it probably is too early to evaluate them fully. Moreover, it appears that this procedure might be utilized to best advantage by limiting its use to active

Thus, stenosis of the pylc
spasm and edema or frc
varieties may be distir
course or by the
the acute transit
qual, continue

SUMMARY

Gastric ulcer occurs less frequently than duodenal ulcer, a proportion of 1 to 9. It is more common in men than in women, a ratio of 4 to 1. The majority of ulcers in this series occurred in patients in the fifth decade or later.

In this series of 131 patients operated on with a diagnosis of benign ulcer, there were 26 malignant ulcers, a diagnostic error of 19.8 per cent in those patients having operation. The incidence of error in *the entire group of patients with gastric ulcers treated* medically and surgically was 3.3 per cent.

Although the majority of malignant gastric ulcerations (61.5 per cent) are larger than 2.5 cm., small ulcers can be and often are found to be malignant. Malignant ulceration may occur anywhere in the stomach but is found more frequently in the prepyloric area, on the greater curvature and in the cardial area. All patients with ulcers arising in these areas should have surgical treatment without further observation or any attempt at medical treatment.

The treatment of all patients with gastric ulcer should primarily be surgical in character; especially should all chronic and recurring ulcerations be resected.

Postoperative results in general are excellent. Recurrent ulcer after resection has not developed in any case. The clinical results are excellent. Mortality can be kept at a minimum, as is illustrated by ninety-six *consecutive resections without a fatality.*

COMPLICATIONS OF PEPTIC ULCER

With Special Reference to Treatment

HAROLD LINCOLN THOMPSON, M.D., Ph.D.
Los Angeles

Peptic ulcer has been the subject of discussion for nearly half a century. During that time noteworthy advancements in our knowledge have been made. There now is greater appreciation of the psychogenesis and the physiologic pathogenesis of peptic ulcer and thus a better understanding of the basically functional nature of the disorder. Since therapeutic empiricism ended about a generation ago, the principles of treatment have been practiced more in accordance with the scientific method. This applies especially to the complications of peptic ulcer wherein there exists the greatest general agreement as to the merits of medical or the necessity for surgical treatment. Present knowledge of the importance of nutrition, of mental and physical hygiene and a wider application of improved methods of medical and surgical treatment have brought about a relative but not an actual reduction in morbidity. Despite these advances there has not resulted a corresponding decrease either in the incidence of peptic ulcer or of its complications. Thus, in view of the currently high incidence and mortality, it is clear that there has been little real progress in the over-all solution of this problem. Thus abundant room remains for constructive work to be done and discussion must continue.

The complications of peptic ulcer are many and varied. They are the principal cause of mortality. They constitute the chief indications for surgery. A comprehensive clinical outline of the primary complications includes:

1. Perforation
    - Acute, into the peritoneal cavity
    - Subacute, with spontaneous closure by omental plug or adjacent viscus and the "formes frustes" type
    - Chronic penetration into adjacent viscera
2. Hemorrhage
    - Mild or moderately severe
        - Initial
        - Recurrent
    - Acute massive
        - Occurring before age 45
        - Occurring after age 45
3. Obstruction
    - Acute intermittent, produced by edema and spasm
        - Obstruction at the pyloric outlet
        - *Hourglass obstruction in the body of the stomach*
    - Chronic progressive obstruction resulting from cicatricial stenosis
        - *Occurring at the pyloric outlet*
4. Intractability
    - With reference to pain
    - With reference to disability
5. Malignant degeneration
    - Practically limited to gastric ulcer
        - Debatable

This outline does not include the conditions which complicate the complications. The most common secondary complications are malnutrition, anemia, shock, general and local peritonitis, wound infection with or without disruption and those occurring in the respiratory and vascular systems. It should be recalled here that two or more complications may exist simultaneously in a given case. In our recent series of surgically treated cases, multiple primary complications existed in 26 per cent.[1]

Prevailing opinion is that surgical treatment should be limited to the complications of peptic ulcer. Accordingly from a surgical point of view two groups of cases must be distinguished. The first group includes those complications characterized by insidious onset and chronic course in which the indications for surgical treatment are relative. The second group includes those cases which develop suddenly, threaten life and become surgical emergencies wherein the indications *for surgical* treatment are absolute. In accordance with this distinction, the present discussion will be confined to three common complications of peptic ulcer, namely, pyloric obstruction, acute hemorrhage and acute perforation.

PYLORIC OBSTRUCTION

Pyloric obstruction is a clinical term which refers to certain symptoms resulting from stenosis occurring in the region of the outlet of the stomach. In 118 deaths from peptic ulcer reported by Portis and Jaffe,[2] obstruction was responsible in 7.5 per cent of cases. Two types of obstruction are to be distinguished clinically. First, there is acute transitory functional obstruction which results from spasm or edema or both wherein the treatment is medical. Second, there is chronic pyloric obstruction resulting from organic cicatricial stenosis in which the treatment ultimately is surgical.

Some of the articles in this symposium are to be published in the *Archives of Surgery.*

Read in a symposium on Peptic Ulcer before the joint meeting of *the Section on Surgery, General and Abdominal,* and the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

[1] Thompson, H. L., and Prout, H.: Surgical Treatment of *Peptic* Ulcer, Arch. Surg. **54:** 390-413 (April) 1947.

[2] Portis, S. A., and Jaffe, R. H.: A Study of *Peptic* Ulcer Based on Necropsy Records, J. A. M. A. **110:** 6-13 (Jan. 1) 1938.

shown that age is the most important factor in mortality in acute massive hemorrhage. He believes that it is dependent on arteriosclerosis in the wall of the bleeding vessel whereby its power of contractility fails. By employing operation within seventy-two hours, by limiting its use to patients who are 45 years of age or over and by utilizing a special technic of exposure under ideal surgical surroundings, Allen reported 1 death in a series of 9 cases. While this mortality is high as compared with the results of medical treatment in general, there is no question but that in his and other like series a few patients have been saved by operation who otherwise would have died. Moreover, there are unquestionably a few patients in whom surgical treatment with direct control of bleeding is the only available means of saving life. The problem lies in the proper selection of those cases and in the technical execution of the appropriate operative procedure on patients who are being supported by blood transfusions before, during and after operation.

Indications for Treatment.—Unfortunately in the early stage of bleeding there is no positive means of distinguishing between patients who will respond to medical treatment and those in whom surgical intervention ultimately will be necessary. The best means at our disposal is close observation of the clinical course. During this period factors which must be taken into account as a basis for the selection or rejection of patients for surgical treatment are several:

Age of Patient: Allen and Benedict[14] having shown that the most important factor in prognosis of hemorrhage from duodenal ulcer was age, in patients younger than 45 years the mortality on conservative treatment was less than 5 per cent. In patients older than 45 years the mortality was 30 per cent. Thus, on the basis of rather general acceptance of the age criterion, in the former group conservative methods should be continued because a mortality of less than 5 per cent fro surgical treatment cannot be expected. In the
oup, however, on the basis of age alone,
forty-eight hour rule should apply to good
vith the expectation of an improvement over
ity of 30 per cent from conservative treat-
atients or ted on after forty-eight hours,
enced a mortality of 30 per

Presence and Location of
lpful in these emergencies
disclosed the presence and
rwise it often is impossible
ctive bleeding. While
al ulcers in other loca-
ber result from erosion
y or one of its branches
posterior wall of the
are known to have
location and in whom
y candidates for imme-

hage: It is important
rhage may be the fatal
ries,[4] 55 per cent of
al hemorrhage and the
from peptic ulcer was
21.6 per cent irrespective of the severity of the bleeding. Most studies indicate that the danger of fatality increases with each hemorrhage, particularly if the patient eventually reaches the critical age.

Severity of Hemorrhage: Emergency surgery should not be applied to hemorrhage from peptic ulcer in patients who present nothing more than occult blood in the stool, blood-stained or coffee-ground vomitus or persistent secondary anemia. Surgical treatment is to be considered only in patients who manifest vomiting of bright or dark red blood, grossly blood-stained or tarry stools and who lose blood sufficient to produce weakness, pallor, dyspnea, tachycardia and decided fall in blood pressure. Estimations of hemoglobin and red blood cells are less valuable early indicators, the hematocrit reading being the best index of quantitative blood loss. If, after multiple blood transfusions, the blood pressure remains below 90 systolic and the pulse rate over 130, there is evidence of continued bleeding and reason for concern for the life of the patient. On the other hand, certain patients respond so promptly to treatment that usually they can be classed early with the more favorable group. In patients who are under conservative treatment two factors indicate that they belong to the less favorable group; namely, the failure early to manifest signs of cessation of bleeding or the evidence that bleeding has recurred. Thus the patient's response to treatment while he is followed by half-hourly checks on pulse and blood pressure is the best criterion for the selection of cases in which surgical intervention is indicated. Emphasis is placed on the necessity for selection within the forty-eight hour period because after that interval the mortality is as high as 30 per cent.

Associated Disease: As is well known, patients past 45 years of age frequently manifest arteriosclerosis, hypertension, coronary sclerosis and other systemic disease. If secondary anemia is superimposed on these conditions, patients become poor operative risks. Within reasonable limits the presence of associated disease is an absolute indication for early operation, since pronounced uncorrected secondary anemia with attendant anoxia, hyperazotemia and hypoproteinemia is more likely to induce a fatal termination than is the operation which is performed to control the bleeding.

The indications for surgical treatment after recovery from hemorrhage are relative and cases therefore require individualization. This phase of the problem will not be discussed here except to emphasize that mortality increases with succeeding hemorrhages and with each hemorrhage the indications for surgical intervention become more definite.

Principles of Surgical Treatment.—Since severe hemorrhage must be regarded as potentially fatal, continued bleeding despite transfusion is the prime indication for surgical intervention. While continued transfusion keeps the patient alive for an indeterminate period, it does not prevent him from becoming so depleted that he no longer is a good surgical risk. The earlier the application of surgery the better the prospect of recovery. Hence the decision for surgical treatment must be early, and once it is made, a departure from it should not be contemplated.

The surgical treatment of acute massive hemorrhage involves direct attack on the bleeding area in order to check the hemorrhage. It requires adequate exposure

---

.: Acute Massive Hemorrhage
6-749, 1933.

shown that age is the most important factor in mortality in acute massive hemorrhage. He believes that it is dependent on arteriosclerosis in the wall of the bleeding vessel whereby its power of contractility fails. By employing operation within seventy-two hours, by limiting its use to patients who are 45 years of age or over and by utilizing a special technic of exposure under ideal surgical surroundings, Allen reported 1 death in a series of 9 cases. While this mortality is high as compared with the results of medical treatment in general, there is no question but that in his and other like series a few patients have been saved by operation who otherwise would have died. Moreover, there are unquestionably a few patients in whom surgical treatment with direct control of bleeding is the only available means of saving life. The problem lies in the proper selection of those cases and in the technical execution of the appropriate operative procedure on patients who are being supported by blood transfusions before, during and after operation.

Indications for Treatment.—Unfortunately in the early stage of bleeding there is no positive means of distinguishing between patients who will respond to medical treatment and those in whom surgical intervention ultimately will be necessary. The best means at our disposal is close observation of the clinical course. During this period factors which must be taken into account as a basis for the selection or rejection of patients for surgical treatment are several:

Age of Patient: Allen and Benedict[14] having shown that the most important factor in prognosis of hemorrhage from duodenal ulcer was age, in patients younger than 45 years the mortality on conservative treatment was less than 5 per cent. In patients older than 45 years the mortality was 30 per cent. Thus, on the basis of rather general acceptance of the age criterion, in the former group conservative methods should be continued because a mortality of less than 5 per cent from surgical treatment cannot be expected. In the second group, however, on the basis of age alone, Finsterer's forty-eight hour rule should apply to good risk cases with the expectation of an improvement over the mortality of 30 per cent from conservative treatment. In patients operated on after forty-eight hours, however, Finsterer experienced a mortality of 30 per cent.

Advance Knowledge of Presence and Location of Ulcer: It is extremely helpful in these emergencies if previous examination has disclosed the presence and location of peptic ulcer Otherwise it often is impossible to localize the lesion during active bleeding. While fatal hemorrhage from superficial ulcers in other locations does occur, the largest number result from erosion of the pancreaticoduodenal artery or one of its branches by penetrating ulcers on the posterior wall of the duodenum. Thus patients who are known to have chronic penetrating ulcers in this location and in whom gross hemorrhage occurs are likely candidates for immediate surgical treatment.

Initial or Recurrent Hemorrhage: It is important to recall that the initial hemorrhage may be the fatal one. Thus, in our recent series,[4] 55 per cent of patients were admitted for initial hemorrhage and the gross mortality in hemorrhage from peptic ulcer was 21.6 per cent irrespective of the severity of the bleeding. Most studies indicate that the danger of fatality increases with each hemorrhage, particularly if the patient eventually reaches the critical age.

Severity of Hemorrhage: Emergency surgery should not be applied to hemorrhage from peptic ulcer in patients who present nothing more than occult blood in the stool, blood-stained or coffee-ground vomitus or persistent secondary anemia. Surgical treatment is to be considered only in patients who manifest vomiting of bright or dark red blood, grossly blood-stained or tarry stools and who lose blood sufficient to produce weakness, pallor, dyspnea, tachycardia and decided fall in blood pressure. Estimations of hemoglobin and red blood cells are less valuable early indicators, the hematocrit reading being the best index of quantitative blood loss. If, after multiple blood transfusions, the blood pressure remains below 90 systolic and the pulse rate over 130, there is evidence of continued bleeding and reason for concern for the life of the patient. On the other hand, certain patients respond so promptly to treatment that usually they can be classed early with the more favorable group. In patients who are under conservative treatment two factors indicate that they belong to the less favorable group; namely, the failure early to manifest signs of cessation of bleeding or the evidence that bleeding has recurred. Thus the patient's response to treatment while he is followed by half-hourly checks on pulse and blood pressure is the best criterion for the selection of cases in which surgical intervention is indicated. Emphasis is placed on the necessity for selection within the forty-eight hour period because after that interval the mortality is as high as 30 per cent.

Associated Disease: As is well known, patients past 45 years of age frequently manifest arteriosclerosis, hypertension, coronary sclerosis and other systemic disease. If secondary anemia is superimposed on these conditions, patients become poor operative risks. Within reasonable limits the presence of associated disease is an absolute indication for early operation, since pronounced uncorrected secondary anemia with attendant anoxia, hyperazotemia and hypoproteinemia is more likely to induce a fatal termination than is the operation which is performed to control the bleeding.

The indications for surgical treatment after recovery from hemorrhage are relative and cases therefore require individualization. This phase of the problem will not be discussed here except to emphasize that mortality increases with succeeding hemorrhages and with each hemorrhage the indications for surgical intervention become more definite.

Principles of Surgical Treatment.—Since severe hemorrhage must be regarded as potentially fatal, continued bleeding despite transfusion is the prime indication for surgical intervention. While continued transfusion keeps the patient alive for an indeterminate period, it does not prevent him from becoming so depleted that he no longer is a good surgical risk. The earlier the application of surgery the better the prospect of recovery. Hence the decision for surgical treatment must be early, and once it is made, a departure from it should not be contemplated.

The surgical treatment of acute massive hemorrhage involves direct attack on the bleeding area in order to check the hemorrhage. It requires adequate exposure of the ulcer so as to ligate the vessels before they enter the ulcer bed. Local, indirect or palliative attempts to control the hemorrhage are the least dependable. In duodenal hemorrhage the technic of Allen[11] is to divide the stomach through the distal third. The anterior wall of the stomach then is incised longitudinally in order to expose the ulcer and control the bleeding by direct digital pressure. When the hemorrhage is brought under control, the vessels are ligated beyond but not within the inflammatory area. The papilla of Vater is then visualized and a general survey is made to determine whether or not removal of the ulcer is a safe procedure. Subtotal gastric resection then is carried out according to the Polya or Billroth II method. In gastric ulcer it is necessary to open the anterior wall of the stomach in order to visualize and digitally compress the vessels. The vessels are ligated in normal tissue beyond the ulcer, after which one has the choice of proceeding with resection if the patient's condition permits or of closing the incision in the stomach, resection being completed at a subsequent stage.

---

[14] Allen, A. W., and Benedict, E. D.: Acute Massive Hemorrhage from Duodenal Ulcer, Ann. Surg. 98: 736-749, 1933.

Postoperative Care.—If subsequent to operation transfusions of blood are employed, it is necessary to check the Rh factor to avoid transfusion reaction. Fluid balance should be maintained and massive doses supplied of vitamins K, C and B. Frequent determinations of serum protein should be made lest deficiencies prevent healing of the wound and promote infection. When serum protein reaches the critical level of 5.2 Gm. per hundred cubic centimeters, replacement must be attempted by the administration of plasma or preferably amino acids.

Successful treatment of severe hemorrhage from peptic ulcer, therefore, involves competent clinical observation preferably on a cooperative medical and surgical basis. Abundant blood must be available for administration when necessary and the response to this treatment must be checked by half-hourly recording of pulse and blood pressure. If surgery is employed, success depends on experience in gastric surgery, wherein the procedure must be carried out with decision and facility.

ACUTE PERFORATION

Acute perforation of peptic ulcer results from extension of the ulcer process through all coats of the viscus, allowing escape of its content into the general peritoneal cavity. DeBakey[16] has shown that there is an apparent increase in incidence of this complication. In 33,439 collected cases occurring in the decade prior to 1940, he found 13.2 per cent of acute perforations. This complication occurs more commonly in males in the third to fifth decades, but has been reported in infants as young as 2 days old. I reported[17] 3 cases occurring in patients over 81 years of age.

As pointed out in a previous communication,[17a] acute perforation is the most sudden, the most severe and the most immediately disabling complication of peptic ulcer. In that study it was shown that the most characteristic symptom of acute perforation is pain. The onset of pain was sudden and intense, and, regardless of the time of the admission of the patient, it was localized in the upper part of the abdomen in 58 to 92 per cent of cases. When recorded, pain was referred to the shoulders in 89.8 per cent of cases. The most important physical finding was abdominal rigidity, which was described as extreme or boardlike in character, in 69.3 per cent of cases. Thus in the typical case of acute perforation of peptic ulcer, there does not exist a difficult diagnostic problem. In fact, the diagnosis in typical cases is so easy that an error is usually the result of inexperience, haste or oversight on the part of the examining physician. Nevertheless, despite the ease of diagnosis in typical cases, there exists a varying proportion of cases which in one or more respects are atypical and in which the establishment of a working diagnosis is difficult.

A point deserving of special mention in the clinical picture of acute perforation is shock. In the early stage of acute perforation pallor, cold moist skin and subnormal temperature often are referred to inclusively, without reference to the patient's blood pressure, as shock. I have shown[17] that whereas these superficial features of shock are present in 72.8 per cent of cases, its existence as confirmed by blood pressure readings regardless of the time of admission of the patient is present in only 19.2 per cent of cases. These observations have been confirmed by Soutter[18] and others.

Treatment.—Less controversy exists regarding the treatment of acute perforation than in any of the complications of peptic ulcer. In most quarters the diagnosis or suspicion of acute perforation is an absolute indication for surgical intervention. Thus closure of the perforation is indicated by common consent at the earliest possible moment. Except for the fact that closure interrupts continued peritoneal soiling, the mechanism by which it brings about recovery is not well understood. The observation that certain atypical forms of acute perforation including the "subacute" type of Lund,[19] the "intermittent leakage" type of Singer[20] and the "formes frustes" type of Singer and Vaughan[21] do well without surgical intervention has led to the concept of nonoperative treatment of perforated ulcer as reservedly advanced by Wangensteen[22] and by Taylor.[23] While Wangensteen emphasized the fact that there can be no debate about the advisability of closure of the perforation in early cases, he stated that patients in whom there are indications of but slight peritoneal soiling, signs of the "formes frustes" type of ulcer or diffuse generalized peritonitis of over twenty-four hours' duration may be treated best by continuous suction applied to an inlying duodenal tube. The Ochsner treatment of peritonitis as outlined by Taylor should be applied, including the regular administration of morphine, intravenous fluids and chemotherapy. The experience of Jackson and Metheny,[24] Barbour and

---

[16] DeBakey, M.: Acute Perforated Gastroduodenal Ulceration: A Statistical Analysis and Review of the Literature, Surgery **8**: 852-884 and 1028-1076, 1940.

[17] Thompson, H. L.: Acute Perforation of Peptic Ulcer: An Evaluation of Contributory and Exciting Causes, Surg., Gynec. & Obst. **64**: 863-871, 1937.

[17a] Thompson, H. L.: Acute Perforation of Peptic Ulcer; An Evaluation of Diagnostic Symptoms and Signs, California & West. Med. **44**: 469-474, 1936.

[18] Soutter, L.: Shock in Perforated Peptic Ulcer, Surgery **10**: 233-241, 1941.

[19] Lund, F. B.: Subacute Perforation of the Stomach with Report of Three Cases, Boston M. & S. J. **152**: 516-518, 1905.

[20] Singer, H. A.: Perforated Peptic Ulcer with Intermittent Leakage, J. A. M. A. **102**: 112-117 (Jan. 13) 1934.

[21] Singer, H. A., and Vaughan, R. T.: The "Formes Frustes" Type of Perforated Peptic Ulcer, Surg., Gynec. & Obst. **50**:10-16, 1930.

[22] Wangensteen, O. A.: Nonoperative Treatment of Localized Perforation of the Duodenum, Minnesota Med. **18**: 477-480, 1935.

[23] Taylor, H.: Perforated Peptic Ulcer Treated Without Operation, Lancet **2**:441-444, 1946.

[24] Jackson, L. E., and Metheny, B.: Thirty Cases of Perforated Peptic Ulcer, Northwest Med. **42**: 367-368, 1943.

Madden[25] and Olson and Norgore,[26] however, indicates extremely high mortality following nonoperative treatment. From this it must be assumed that patients who are to receive this treatment must be selected with extreme and discriminating care. As pointed out by Allen, longer time must be allowed in order to evaluate this method of therapy.

Surgical Treatment.—There being general agreement on the value of surgical treatment properly applied, it appears that if further reductions in mortality are to be anticipated, close attention to the technical details must be observed.

Anesthesia: In patients who are in good condition spinal anesthesia generally is preferred. Paradural analgesia should prove satisfactory but its administration is time consuming, and with reference to perforated ulcer it has not had extensive consideration in the literature. In patients who are in poor condition, intratracheal inhalation anesthesia employing nitrous oxide or cyclopropane after induction with "pentothal sodium" is to be preferred. Curare assists in securing adequate relaxation without employing excessive amounts of the anesthetic agent. In patients who are in very poor condition, field block may be employed if surgery is to be utilized at all.

Abdominal Incision: Because serious and sometimes fatal infection or disruption of the wound occurs after operation for acute perforation, attention has been given in recent years to the type of abdominal incision.[27] Instead of the usual longitudinal incision oblique or transverse incisions have been utilized employing the muscle-splitting principle. The advantages claimed for such incisions are that the wounds are more easily closed, after which early ambulation may be employed with greater safety and with resulting shorter periods of hospitalization.

Peritoneal Culture: The taking of routine peritoneal cultures at the time of operation as recommended by many[28] yields interesting results from a clinical and prognostic standpoint. In general, positive cultures are obtained in about 50 per cent of cases, from which it may be deduced that in early operation negative cultures are not uncommon. The organisms most frequently encountered are the colon bacillus, the Streptococcus and occasionally the Staphylococcus. When positive cultures are obtained, the reported mortality ranges from 30 to 70 per cent.

Closure of Perforation: With reference to the method of closure of the perforation, it is generally agreed that the best procedure is simple closure reinforced by fixation of a tag of omentum over the suture line. Thus in our series[29] there was a difference in mortality of nearly 10 per cent between the groups of cases in which the closure was completed with and those without the tag of omentum. Special methods of closing the perforation have been devised.[30] In experimental work on dogs, Price and Tunnie found that living omental patches were highly resistant to digestion and infection and that they allowed gastric defects ample time to heal. Their results were not good when omental transplants bereft of blood supply were utilized. Without attempting to close the opening with sutures, Graham closes the perforation simply by tying a tag of living omentum over it. Baritell's method is similar. Gatch and Owen's method is to place a row of silk sutures in healthy stomach and duodenal tissue well beyond the limits of induration. After these sutures are laid down the walls are pulled together, thus deeply infolding the ulcer. The addition in conjunction with closure of such other procedures as pyloroplasty and gastrojejunostomy practically has been abandoned because of poor results from these procedures. In accordance with Graham's dictum, "the surgeon's responsibility is solely to save life and to do this with the most simple and minimal surgical procedure that will accomplish that end."

Numerous instances have occurred at operation in which the perforation already has been closed by a tag of omentum. It now is rather well known that in such instances it is not only desirable but imperative not to disturb the tag of omentum or to attempt to close the perforation with sutures.

Gastric Resection: Follow-up studies indicate that subsequent to suture of acute perforation of peptic ulcer recurrence of symptoms is frequent. In our series,[29] follow-up for periods up to eighteen months was possible in 41 per cent of cases. While 68 per cent of patients in this group claimed to have been completely relieved by operation, approximately 32 per cent required further medical treatment and 8 per cent further surgical treatment within that period. In an effort to improve the late results of surgical treatment of acute perforation certain writers, particularly of the European school, have advocated subtotal resection as a primary operation.[31] While these writers claim low operative mortality and superior end results, the best opinion in this country seems to be that gastric resection should be applied as a second stage procedure if needed when the patient is in better condition to withstand it.

Drainage of Peritoneal Cavity: Whereas in the past it was common practice to drain the peritoneal cavity, the practice has been abandoned almost entirely in favor of thorough aspiration at the time of operation and tight closure of the abdominal incision. Special attention was given to this point in my previous report.[29] In the group of patients in which drainage was not used the mortality was 14 per cent. In cases in which single drains were utilized the mortality ranged from 19.7 to 32 per cent, whereas in cases in which multiple drains were employed, the mortality was 34.4 per cent. Thus the lowest mortality resulted in those cases without drainage and the mortality increased in direct proportion to the number of drains employed.

The employment of sulfonamide compounds in the peritoneal cavity has received the attention of numerous writers.[32] While at the time of their writing certain authors were favorably impressed, convincing statistical proof was not adduced by any of them, and some writers stated that they were "not impressed" by their use. While it is difficult to check on this point in the literature, my feeling is that the practice probably has been abandoned almost entirely in favor of parenteral administration of sulfonamide compounds and antibiotics before and soon after operation.

---

[25] Barbour, R. F., and Madden, J. L.: Acute Gastroduodenal Perforation, Am. J. Surg. **59**:484-495, 1943.

[26] Olson, H. B., and Norgore, M.: Perforated Gastroduodenal Ulcer, Ann. Surg. **124**: 479-491, 1946.

[27] (*a*) Amendola, F. H.: A Simplified Approach for the Suture of Acute Perforation of Peptic Ulcer, Surg., Gynec. & Obst. **64**: 76-77, 1937. (*b*) Gatch, W. D., and Owen, J. E.: The Technique of Closing Perforated Ulcer of the Duodenum, Ann. Surg. **105**: 750-757, 1937. (*c*) Griswold, R. A., and Antoncic, R. F.: Perforated Peptic Ulcer, ibid. **113**: 791-801, 1941. (*d*) Hartzell, J. B., and Sorock, M. L.: Acute Perforated Peptic Ulcer: Simple Closure Through a Short Transverse Incision, Surg., Gynec. & Obst. **69**: 669-670, 1939.

[28] (*a*) Berson, H. L.: Acute Perforated Peptic Ulcer, Am. J. Surg. **56**: 385-394, 1942. (*b*) Graham, R. R., and Tovee, E. D.: The Treatment of Perforated Duodenal Ulcer, Surgery **17**: 704-712, 1945. (*c*) Griswold and Antoncic.[27c] (*d*) McNealy, R. W., and Howser, J. W.; Perforation in Peptic Ulcer: A Critical Review of Seven Hundred Cases, J. Internat. Coll. Surg. **5**: 115-124, 1942.

[29] Thompson, H. L.: Acute Perforation of Peptic Ulcer: Immediate and Late Results in Five Hundred Cases, J. A. M. A. **113**: 2015-2018 (Dec. 2) 1939.

[30] (*a*) Baritell, A. L.: Perforated Gastroduodenal Ulcer, Surgery **21**: 23-33, 1947. (*b*) Gatch and Owen.[27b] (*c*) Graham and Tovee.[28b] (*d*) Price, P. B., and Lee, T. F.: Use of Omentum to Close Perforations of the Stomach, Arch. Surg. **50**: 171-173 (March) 1945.

[31] Judin, S. S.: Partial Gastrectomy in Acute Perforated Peptic Ulcer, Surg., Gynec. & Obst. **64**: 63-68, 1937. Sandberg, I. R.: On the Treatment of Perforated Gastric and Duodenal Ulcer, Acta chir. Scandinav. **93**:467-482, 1946. Strauss, A.: Primary Gastric Resection for Perforated Gastroduodenal Ulcer, Ann. Surg. **120**: 60-65, 1944.

Wound Closure: Because of the frequency with which wound infection and wound separation is reflected in terms of mortality, attention has been given not only to the type of incision but also to the method of wound closure. Meade[33] found that in cases in which all layers of the wound except the skin were closed with surgical gut, there was primary wound healing without drainage in 74 per cent. While there was little or no correlation between the amount of intraperitoneal fluid and the interval between perforation and operation, the character of the fluid was important to the extent that when the fluid was frankly purulent primary healing occurred in only 50 per cent of cases. Barbour and Madden[25] usually close the wounds in layers without drainage, using black silk, but occasionally they employ through and through sutures of heavy silk. Black and Blackford[31] have advocated a combination of layer closure with surgical gut reinforced by through and through nonabsorbable sutures. In a recent study we[1] found that in 71 cases in which layer closure of the wound with surgical gut, cotton or steel wire was utilized there was a mortality of 9.8 per cent. In 29 cases in which through and through closure of the wound with wire, cotton or silk was employed, the mortality was 27.5 per cent. Through and through closure, however, was employed in cases which seemed at the time of operation to have a poor prognosis.

Postoperative Care.—Postoperative care is extremely important. Continuous gastric suction should be employed until danger of leakage at the point of closure is passed, the possibility of obstruction is eliminated and normal peristalsis ensues. Intravenous administration of fluids consisting of 5 per cent dextrose in isotonic solution of sodium chloride or water in sufficient amount that the patient's urinary output is at least 1,500 cc. per day should be utilized. Amino acids should be administered to the older patients, those in poor nutrition, those with bacterial peritonitis and when hypoproteinemia is present. Sulfadiazine should be administered intravenously along with sufficient sixth-molar sodium lactate solution daily to maintain urinary alkalinity and until the patient is free of signs of bacterial peritonitis or until he can take the drug orally. Penicillin may be employed if the bacterial culture indicates that it should be used. Morphine is essential but should be used with discretion lest fluids collect in the lungs and bronchi. In fact, special attention must be paid to the patient's respiratory and circulatory systems. The patient's position should be changed at least every two hours, and he should be encouraged to exercise his legs while in bed. Early ambulation should be employed except when bacterial peritonitis is present. In the first twenty-four to seventy-two hours deep inhalations of carbon dioxide at one-half to two hour intervals should be employed and coughing should be encouraged. Tracheal aspiration by catheter or bronchoscope should be used to remove bronchial exudate if the patient cannot expectorate it.

Mortality.—As compared with fifty years ago there has been a decided reduction in mortality in the surgical treatment of acute perforation of peptic ulcer. According to DeBakey[16] between the years 1897 and 1901 mortality ranged from 48 to 91 per cent. While some authors reported extremely low mortality rates,[35] the results of operation in large general hospitals in the United States are fairly uniform. Thus in 1939,[29] I reported from the charity services of Los Angeles hospitals a mortality in surgically treated patients of 28.7 per cent. Recently in material from the same source,[1] the mortality was 15 per cent. As pointed out by Baritell,[30a] there is no doubt but that if it were possible to employ the ideal procedure in every case the mortality could be reduced at least by 10 per cent.

Late Results: There is a general feeling that from 50 to 60 per cent of patients are relatively free of symptoms after suture of an acute perforation of peptic ulcer. Thus Wakeley[36] found that 44 per cent of 103 cases were able to perform military service. Williams,[37] reporting a follow-up of 100 cases from the Boston City Hospital, reported excellent to good results in 55 per cent of cases. On the other hand, Houston[38] noted recurrence of symptoms in 62 per cent of cases and found that 20 per cent of patients required further surgical treatment. Harrison and Cooper[39] reported persistent ulcer symptoms in 82.5 per cent and Estes and Bennett[40] in 94.4 per cent. With wide variations reported in the percentages of beneficial results as compared with the complete relief of symptoms, it seems best to agree with the statement of Black and Blackford[31] that the patient with ulcer after perforation should be considered in the same light as other patients with peptic ulcer.

CONCLUSION

An outline of complications of peptic ulcer has been presented. The incidence, clinical features, diagnosis and indications for conservative and surgical treatment have been discussed. Elective surgery having been discussed by other collaborators in this symposium, special attention has been directed toward the surgical treatment of pyloric obstruction, acute hemorrhage and acute perforation into the free peritoneal cavity. While indications for surgical treatment in these complications range from relative to absolute, attention has been directed toward the absolute indications wherein surgery is applied as a life-saving measure. Only by frequent and recurring discussion is there hope of reduction of the persistently high mortality in complications of peptic ulcer.

---

[32] Griswold and Antoncic.[28c] Harvey, H. D.; Meleney, F. L., and Rennie, J. W. R.: Peritonitis: III. Studies in Peritoneal Protection with Particular Reference to the Action of Sulfonamide Drugs in Experimental Peritonitis, Surgery **11:** 244-260, 1942. McCabe, E. J., and Mersheimer, W. L.: Acute Gastroduodenal Perforation, Am. J. Surg. **62:** 39-49, 1943. Timoney, F. X.: Perforated Peptic Ulcer, Ann. Surg. **117:** 710-717, 1943. O'Donohue, J. B., and Jacobs, M. B.: Acute Perforation of Gastric and Duodenal Ulcer: A Study of Two Hundred Consecutive Operated Cases, Illinois M. J. **81:** 62-69, 1942. Paletta, F. X., and Hill, W. R.: Acute Perforated Gastric and Duodenal Ulcer, Surgery **14:** 32-37, 1943.

[33] Meade, R. H.: A Study of the Healing of Abdominal Operative Wounds Following Closure of Perforated Ulcers of the Stomach and Duodenum, Surgery **14:** 526-530, 1943.

[34] Black, B. M., and Blackford, R. E.: Perforated Peptic Ulcer: Review of Ninety-Six Cases, S. Clin. North America **25:** 918-937, 1945.

[35] Baritell.[30a] Graham and Tovee.[28b]

[36] Wakeley, C. P. G.: Late Results of Perforated Peptic Ulcer, Lancet **1:** 11-12, 1944.

[37] Williams, A. T.: Perforated Peptic Ulcer. A Follow-Up Study of One Hundred Cases, New England J. Med. **230:** 785-790, 1944.

[38] Houston, W.: The Aftermath of Perforated Peptic Ulcer, Brit. M. J. **2:** 221-223, 1946.

[39] Harrison, C., and Cooper, F. W.: Immediate and Late Results of Perforation of Peptic Ulcer, Ann. Surg. **116:** 194-199, 1942.

[40] Estes, W. L. and Bennett, B. A.: Acute Perforation in Gastroduodenal Ulceration with Special Reference to End Results, Ann. Surg. **119:** 321-341, 1944.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FELDMAN, RAFSKY, WEINGARTEN AND KRIEGER, WALTERS, NEIBLING, BRADLEY, SMALL AND WILSON, MARSHALL AND WELCH, AND THOMPSON

Dr. Lester R. Dragstedt, Chicago: The discovery by Dr. Wangensteen and his associates that if an excessive, continuous secretion of gastric juice is produced in experimental animals peptic ulcers regularly appear in the stomach and duodenum is of great significance in the clinical problem. Evidence is gradually accumulating that a similar, abnormally large secretion of gastric juice is characteristic of the empty stomach of patients with duodenal ulcers. The control studies of Dr. Levin are especially valuable in this connection. We have found that this excessive secretion of gastric juice is neurogenic in origin and is abolished by complete division of the vagus nerves to the stomach. So far, we have not encountered a patient with duodenal ulcer whose excessive gastric secretion was on a hormonal or chemical basis. The observation that the excessive gastric secretion which occurs in patients with ulcer is neurogenic in origin and is abolished by gastric vagotomy constitutes the physiologic basis for this operation in the treatment of peptic ulcer. The cause of the secretory hypertonus of the vagus nerves in this disease is still obscure. The observations of Dr. Feldman are here of great interest. It may well be that long continued mental effort and strain, with perhaps an emotional content, may produce this hypertonus of the vagus nerves and that it is in this way that the central nervous system plays its role in the disease. During the past year, I have on several occasions heard Dr. Walters tell of his experience with the type of gastric vagotomy that he employs in the treatment of peptic ulcer, and I am convinced now that he does not like the operation that he has been performing: I must confess that I agree with him—I do not like it either. In my experience, a complete division of the vagus nerve fibers to the stomach can only be secured if these nerves are attacked along the lower part of the esophagus. The operation which Dr. Walters is performing represents an attempt to secure a complete vagotomy by cutting these nerves along the stomach. This is a procedure similar to that described by Stierlin and Schiassi many years ago and is almost certain to be incomplete. I should like to emphasize that in our hands, the operation is a supradiaphragmatic section of the vagus nerves, both when the operation is made through the abdomen and when it is made through the left side of the chest. In each instance, the vagus nerves are divided along the lower part of the esophagus, approximately 5 cm. above the stomach. The clinical results obtained have been more favorable than those secured by any other method with which I am familiar.

Dr. Sara M. Jordan, Boston: There is need for this symposium for three reasons: (1) because of the use of enterogastrone, (2) because of the use of vagotomy and (3) because this question of operation on all gastric ulcers has again arisen and should be discussed. The American Gastro-Enterological Association now has a committee to study the problem of ulcer nationally, and I am authorized by Dr. Harry Bockus, who has just supplanted Dr. Walter Palmer as our new president, to state that two subcommittees are being formed to study both vagotomy and enterogastrone intensively throughout the country. With regard to the question of whether all gastric ulcers should be operated on, Dr. Marshall hinted that there might be disagreement in our clinic on this point. The disagreement is more apparent than real because we are all gastroenterologists and surgeons intensely interested in the effort to improve the detection of carcinoma of the stomach and to obtain the earliest surgical treatment possible in cases that are malignant or can justifiably be suspected of malignancy. The arguments for the use of surgery in all gastric ulcers are that with increased skill of experienced surgeons and resultant decreased mortality surgical treatment is much safer. Dr. Marshall's latest figures would have convinced you of the improved risk, and that is, I believe, common experience, that subtotal gastrectomy now has a very low mortality. This, of course, was not true in the days when we struggled to save gastric ulcers from surgical treatment, if we thought that they could possibly be benign. Furthermore, our experience shows that there is a definite incidence of cancer, of change to cancer, in the unhealed and in the recurrent ulcer, and both surgeons and gastroenterologists have no question of that. In our records we have cases in which there was a presumably benign ulcer many years before the patient had a recurrent lesion in that same area which was malignant. That original ulcer healed and the patient was well in the meantime, but in that same area there was a return of the lesion which was then malignant. These cases indicate, we believe, that with recurrence there may be a change from benignity to malignancy. Against the idea that all gastric ulcers must be resected at once, we gastroenterologists ask ourselves, Shall gastric physiology be—I was going to use the word "sacrificed," but I think that the surgeons would object to that word—but shall it be mutilated in any way in all stomachs where there is a gastric ulcer? Shall this occur even though in our experience of twenty-four years (and many of our cases we have followed for a good many years) we find many instances of healing of the original ulcer and no recurrence throughout twenty-four years?

Dr. Ralph Colp, New York: Our results at the Mount Sinai Hospital, New York, were comparable to those of the Mayo Clinic. Our first 33 cases were transthoracic; the remaining 57 cases were intra-abdominal. We are convinced that the vagi may be effectively visualized and adequately divided by this approach. Moreover, it affords an opportunity to verify the local pathologic changes and perform a thorough exploratory examination. The insulin test revealed that in the majority of patients the nerve had been completely severed. There appears to be no relationship between the completeness and incompleteness of the vagotomy and the relief of pain, the acidity figures, the motor disturbances and the other complications. A synopsis of 21 cases of uncomplicated chronic duodenal ulcer which were intractable to medical treatment, many with hemorrhage but none with demonstrable obstruction, shows that the ulcer pain was eliminated in all but 1, which required operation two months later, and in spite of a negative insulin reaction on two occasions, an active ulcer on the posterior wall of the duodenum was present. Motor disturbances were the general rule, but they were so severe in 4 that these patients begged for relief because of epigastric distress, vomiting and the belching of foul gas. Exploration revealed that the ulcer had healed, that the pylorus was patent and that the stomach was dilated. The symptoms were relieved by a subtotal gastrectomy in 3 cases, and a gastroenterostomy in 1. Because the results were so unpredictable and variable, we have discontinued vagotomy as a sole procedure in the treatment of duodenal ulcer. We feel that vagotomy in gastric ulcer should never be done because it is impossible to tell whether an ulcer is benign or malignant. Subtotal gastrectomy removes the lesion, and the results over the past twenty-five years have been so excellent that we see no reason to discard it. A series of patients with duodenal ulcer were treated by combined operation. If gastric atony is so common following vagotomy, would not the best interests of these patients be served by the performance of a routine gastroenterostomy in vagotomy cases? We are doing gastroenterostomy and vagotomy in a control series of 25 cases, 19 having been done to date, many in old patients we deemed not suitable for subtotal gastrectomy. The motor difficulties in these cases have been transient. If the follow-up results over the next five to ten years reveal a lowering of the incidence of gastrojejunal ulcers following gastroenterostomy, then subtotal gastrectomy as a procedure for duodenal ulcer will probably be discarded.

Dr. Asher Winkelstein, New York: I have been studying the nocturnal gastric secretion since 1928. In 1931 I reported that the gastric secretion during the night was high in volume and acidity in patients with duodenal ulcer as contrasted with normal persons. All the methods used to control the night acidity before retiring and during the day failed. I therefore proposed at that time the continuous intragastric drip therapy which does control the night acidity. Since then many other observers, namely, Norporth, Henning, Chalfen, Dragstedt and Valdex, have confirmed these findings. Recently there has arisen the dissenting voice of Dr. David Sandweiss, who claims that normal persons and patients with ulcer have a similar nocturnal secretion. We disagree with Sandweiss' findings for the following reasons: 1. His test supper was too heavy and too stimulating. 2. He utilized ambulatory patients with very mild ulcer for study. 3. In his normal controls he upset, by using continuous suction, the duodenal regulatory inhibitory mechanism. We are therefore greatly pleased to hear today that this excellent study by Dr. Ervin, from Dr. Walter Palmer's clinic, once again confirms our original findings, an increased volume and acidity in patients with duodenal ulcer as contrasted with normal persons. The low acidity which is found so frequently in gastric ulcers is probably due to the associated gastritis occurring in the secretory area of the stomach. I have demonstrated that the best, in fact perhaps the only, medical method to control completely the night acidity is my continuous intragastric drip therapy with milk and calcium hydroxide solution or aluminum hydroxide gels. Enterogastrone in the dosage used does not control gastric acidity. Recently in a series of studies I found that the Co Tui protein hyperalimentation therapy also does not control the night acidity. Lester Dragstedt has demonstrated that surgically the best method of controlling the night acidity is complete bilateral vagotomy. We have studied the results of vagotomy and found that vagotomy alone lessens the night acidity and the volume by 50 per cent, but gives no night achlorhydria. The combination of gastroenterostomy and bilateral vagotomy gives 53 per cent night achlorhydrias. The combination of subtotal gastrectomy and bilateral vagotomy gives the startlingly good figure of 94 per cent night achlorhydria and 83 per cent day achlorhydria. Since we believe in the following dicta, "no acid—no ulcer," "control acid—healing of ulcer," "no postoperative acid—no recurrent ulcer," we advocate, medically, the control of the harmful night acidity secretion by the continuous intragastric drip therapy, and, surgically, the control of the harmful night and day acidity by the combination of subtotal gastrectomy and bilateral subphrenic vagotomy.

Dr. H. B. Stone, Chicago: I fear that we cannot make comparable report of such an admirably low mortality rate as Dr. Marshall has indicated. Our mortality rate would be somewhat higher than his. The most striking single figure reported by Dr. Marshall has nothing to do with the things I have just enumerated. It concerns the fact that in approximately 130 cases diagnosed by the most careful study as presumably benign gastric ulcers, operation has demonstrated actually that pathologically malignant lesions were present, and that, I take it, is the central theme of the paper of Dr. Marshall and the most important message that he brought to us today. I should like to report a single case which bears on this same problem. Some fifteen years ago, I operated on a man who was then 33 years old. I resected a small prepyloric ulcer, resection being inadequate as compared with present day standards. My diagnosis was a simple ulcer, and that was the laboratory report. In about ten months the patient began to show failing health, and on roentgen study it was apparent that he had been the victim of malignant extensions. Then the pathologist hunted up the block of tissue. Further sections were cut, and this time a clearcut diagnosis of carcinoma was made. I cite that case as to me being more significant than mere figures. Here was a patient who presented a lesion that a reasonably experienced surgeon on examination accepted as being benign, and a good pathologist on primary section accepted as being benign, yet the clinical course and the later pathologic investigation proved it to be unequivocally a malignant lesion. I agree with Dr. Marshall that there are very few cases of gastric ulcer which require total gastrectomy for the adequate removal of the lesion I hope that we will adopt the general use of the term "partial gastrectomy" for this type of operation. Dr. Marshall did not comment on the type of restoration that he used after gastric resection, and I take it from other publications from the Lahey Clinic that they are utilizing the antecolic Polya type of operation, or modifications of the Polya repair. That is our procedure, and we find it more satisfactory than any other method of reconstruction. The main point in Marshall's paper, is that there is grave danger of malignancy in supposedly benign gastric ulcers. The unavoidable lesson may be stated thus: Whereas duodenal ulcer is properly regarded as primarily best treated by medical measures, with certain exceptional cases requiring surgical handling, gastric ulcer should be considered primarily a surgical problem, with certain exceptional cases suitable for medical treatment.

Dr. J. William Hinton, New York: In principle, I agree with every point Dr. Marshall has made. I have, in the two clinics with which I have been associated—one for twenty years and another for ten years—followed the principles in every detail which he outlined and the points which he has enumerated. Within the past two years I have come to the conclusion which Dr. Marshall has stressed, that in many gastric lesions one can never be sure that they are benign, and perhaps more should be operated on. Of course, the problem which we all have is that of being accurate in our diagnosis. It is obvious from his report that 33 per cent of all the so-called ulcers had actually early malignancy. For the past few months we have been interested in trying to diagnose some of these lesions by gastric lavage, and Dr. McKenzie has used the technic of Papanicolaou, which he used for uterine cancer, and has applied it to washing from the stomach to get malignant cells, and to date we have had 39 cases. Dr. McKenrie knows nothing about the patients or their history; he is merely giving the gastric washings. For those patients he has reported twenty-four positive results, and of the twenty-four positive results, twenty-two were correct and two were in error. He reported fifteen negative results, and of these eight were incorrect. That is not bad, because those were cases of scirrhous carcinoma. There were no ulcerating lesions, and it was obvious that one could not get malignant cells from the gastric lavage. I think it is even more important that Dr. McKenzie, who is a gynecologist, had never seen cells of the gastrointestinal tract, and I think it possibly offers some help in making the early diagnosis in the debatable gastric lesions.

Dr. H. C. Saltzstein, Detroit: We have had through the course of a number of years a rather large series of dogs with Mann-Williamson ulcers which either were followed as controls with no medication or were given various medications, in the hope of modifying the course of the ulcer. We tried to see what effect a vagotomy would have on these dogs. A series of 28 control dogs survived the Mann-Williamson operation an average of seventy-one days. Twelve dogs who had vagotomy plus Mann-Williamson operation survived a much shorter period of time; that is, fifty-one days following the Mann-Williamson operation and forty-four days following vagotomy. (The vagotomy was usually, but not always, done after convalescence from the Mann-Williamson operation). Of the controls, 100 per cent showed ulcer at autopsy and 72 per cent of these died of perforation with peritonitis. Of the vagotomized animals, 6 of the 8 who lived more than one month after the Mann-Williamson operation had jejunal ulcers. An inflammatory reaction of varying severity was found in the upper part of the jejunum in 7 of these 12 dogs. There was no correlation with survival time. If it should be found to exist in patients after vagotomy, it might explain the diarrhea which at times follows this surgical procedure. Gastric dilatation was present in 9 of the 12 Mann-Williamson dogs who had vagotomy. This occurred more frequently in dogs with short survival time, but 1 animal showed decided gastric dilatation one hundred and eighty-two days after vagotomy and the Mann-Williamson operation.

Dr. Otto De Muth, Vancouver, British Columbia, Canada: I thank you for the Canadian surgeons who have been privileged to attend this magnificent session of the centennial of the American Medical Association. I am sure we have all enjoyed the high standard of the scientific papers that have been presented. We have learned much from our distinguished American confreres. The psychiatric, medical and surgical treatment of peptic ulcer has one objective: the lowering of hydrochloric acid in the stomach. This, to my mind, is attacking the problem of peptic ulcer from only one side. I would suggest that we treat peptic ulcer with the most effectual alkaline juice of the gastrointestinal tract—pancreatic juice. Pancreatic juice is capable of neutralizing the highest concentration of hydrochloric acid that the stomach is able to produce. Professor Ivy, in the December issue of The Journal of the American Medical Association, suggested that in peptic ulcer we want to raise the resistance of the mucous membrane of the stomach, duodenum and jejunum. By accident and observation have the great discoveries of x-ray, insulin and penicillin been found. So, too, we have found by sectioning the sphincter of Oddi to cure biliary dyskinesia and to prevent recurrence of gallstones—in the common duct, the release of pancreatic juice cured duodenal ulcers in 3 of our patients who were suffering from both lesions, and 1 of our patients had an anastomotic ulcer. This work is confirmed by the findings of the Mayo research staff. The Mann-Williamson operation on dogs proved that peptic ulcers occurred down to the entrance of pancreatic juice into the intestine. Likewise, in the Whipple operation, in which the stump of the pancreas, with the shortened duct of Wirsung, is anastomosed to the jejunum, there is not recorded in the literature a single case of peptic ulcer occurring at this site, where pancreatic juice enters the small intestine. Peptic ulcers will not occur and will invariably heal in the presence of pancreatic juice. Treat peptic ulcers with nature's alkaline pancreatic juice.

Dr. Russell S. Boles, Philadelphia: We have passed through the eras of gastroenterostomy and the various stages of gastric resection, both for gastric and duodenal ulcer, only to be disillusioned, except possibly in the case of resection for gastric ulcer. The local results from the latter are good. What the systemic results may be still remain to be determined. We are now witnessing the dawn of vagotomy and regretfully must admit there are many clouds on the horizon. First, we would like the gentlemen concerned to make up their minds whether the operation of vagotomy should be done above or below the diaphragm. Anatomic studies by different persons do not agree on which should be the best approach. There is something wrong somewhere in this picture. Gastroenterostomy is now being advised as a supplementary operation to vagotomy. I cannot understand by what magic all the previous hazards of gastroenterostomy will suddenly be dissolved by doing a vagotomy. Certainly it will not be because either operation produces a state of anacidity. We know now, of course, that anacidity is not achieved by a gastroenterostomy, though such was the original intention of the operation, and there is already sufficient evidence that in most cases even vagotomy is not likely to effect a permanent state of anacidity. What then is to be expected from gastroenterostomy under these circumstances? I can only foresee all the direful things that happened previously and that dictated the abandonment of this operation. If vagotomy is being done to reduce acidity, it would be interesting to know how one is going to explain the logic of deliberately reducing pancreatic secretion, which we have been told vagotomy does do, when this secretion is one of nature's most effective means of neutralizing excess acidity. I would suggest that surgeons declare a moratorium on vagotomy for a five year period. There have been more than enough of these operations done by now to serve for follow-up study to determine just how valuable the operation may be. I must express disappointment in the emphasis given to the old theme song "No acid, no ulcer." I do hope that eventually we will develop a little more breadth of vision about the etiology of ulcer. For fifty years we have been approaching ulcer, medically and surgically, on the assumption that it is caused by acid. Surgeons and physicians alike cannot say that they have achieved any real permanent cure for ulcer on this basis. As long as we have not solved the problem of ulcer in the past fifty years by this method of approach, it does seem time that some new aspects of it should be more seriously considered.

Dr. Richard Lewisohn, New York: Many members of this audience will remember the battle which centered around partial gastrectomy versus gastroenterostomy in the treatment of duodenal ulcers about twenty years ago. It took many years to settle this controversy in favor of gastric resection. Dr. Dragstedt has reopened the question of the surgical treatment of peptic ulcer by attacking the vagus nerve transthoracically, or, more recently, transperitoneally. Dr. Dragstedt deserves great credit for his careful experimental work which led him to use vagotomy in patients. Just as Blalock and Taussig did extensive work on animals before they introduced their new methods into clinical surgery, Dragstedt prepared himself thoroughly before he attempted vagotomy in patients. We should reserve final decision of the value of Dragstedt's operations for two reasons: One, vagotomy is followed in many cases by marked interference with gastrointestinal motility, and secondly, follow-ups seem to indicate that free acid in the fasting contents is still present in the stomach in a considerable number of cases, thus opening the door to persistence or recurrence of ulcers. Pronounced atony, sometimes extending over many weeks, is observed in many cases. I have always considered pronounced atony as one of the most dangerous complications following abdominal operations. This postoperative complication should not be taken lightly. Postoperative anacidity is the best safeguard against recurrent ulcer. For this reason, the follow-up results of subtotal gastrectomy for gastric ulcer are perfect. However, in many cases of gastric resection for duodenal ulcer, free acid is still present not only immediately after the operation but in late follow-ups. In this latter group the incidence of recurrent ulcer is about six per cent. If vagotomy would establish a permanent postoperative anacidity in every case, this new operation would be on much safer ground. However, that does not seem to be the case. For this reason I should like to warn against combining vagotomy with gastroenterostomy. It has been stated that gastroenterostomy is a disease, not an operation. I wonder whether vagotomy plus gastroenterostomy will give better end results than simple gastroenterostomy and will prevent the occurrence of gastrojejunal ulcers. It may not be advisable to combine vagotomy with partial gastrectomy for duodenal ulcer, as the atony may represent a serious postoperative complication. However, in a small group of recurrent ulcers following gastric resection a transthoracic or transperitoneal vagotomy may represent a good method.

Dr. Waltman Walters, Rochester, Minn.: The completeness of my method is demonstrated by a motion picture which was shown a number of times at sectional meetings of the American College of Surgeons the past year. Moreover, microscopic examination of the resected portion of tissue should be made to confirm that it is nerve tissue. In most of my cases there have been two distinct nerves, in a few three and in some four. In about 8 or 10 per cent, multiple branches were disclosed in the anatomic dissections. I cannot refrain from commenting on Dr. Boles' discussion because I think we should not forget that in most instances the patients with duodenal ulcer who are referred by the internists to the surgeon for operation are those who have not responded adequately to a medical regimen and who must have relief from either pain, obstruction or hemorrhage. These patients make up that group in which surgical procedures have been carried out by my colleagues and myself and, in those cases as well as similar cases in which other surgeons operated, as has been shown in thousands of instances, definite results have been recorded after the operation of partial gastrectomy, and the results have generally been very good. We should not overlook that fact, because to those patients such an operation, which is now performed with such a low mortality rate by all surgeons of experience is really a life-saving measure. We must not forget, either, that the operation of partial gastrectomy in the treatment of chronic, recurring gastric ulcer that has not responded to a medical regimen has given some of the best results of any method of therapy. The risk is low and recurrence may never take place, I have, myself, never seen recurrence of an ulcer in cases in which resection has been done for a gastric ulcer alone and in which the pylorus has been removed with at least half of the stomach and the ulcer. We should remember that only about 2 per cent of patients get recurring ulcer after partial gastrectomy for duodenal ulcer, and practically never is there a recurrence when the operation is performed for gastric ulcer. But in the 2 per cent of patients who have recurrences of duodenal ulcer after partial gastrectomy, vagotomy will frequently cause healing of the ulcers. Dr. Dragstedt's studies are fine contributions to the surgery of recurring ulceration. Differences of opinion are a healthy thing. However, we must be sure that we are talking about similar groups of cases, that the lesion exists, that a complete division of the vagus nerve is made and that an accurate follow-up is carried out.

ALLERGY FROM THE PERSPECTIVE OF GENERAL MEDICAL PRACTICE

HARRY L. ALEXANDER, M.D.
St. Louis

Clinical allergy has been recognized for thirty years. Before then asthma, hay fever, urticaria and eczema were considered somehow related, but the demonstration that all these were manifestations of a single underlying disorder, then called "protein sensitization" or "anaphylaxis," was an advance in medical progress. Not only was this type of human hypersensitiveness demonstrated by means of a positive reaction to a cutaneous test but this test presumably indicated the actual substance, such as a particular food, pollen or animal dander, that caused the symptoms of which the patient complained. This dramatic revelation soon took hold on medical imagination.

During the first fifteen years the cutaneous test was the keystone to the practice of allergy Many hundreds of allergens were found to produce positive reactions, and there was continual search for new ones. Foods, plants, hair from native and wild animals and bacteria were extracted in increasing numbers until as many as seven hundred tests were given to some patients whose only complaint may have been nasal stuffiness or urticaria.

The process of manufacture of these allergens and their application was time consuming and required particular knowledge and technics so that before long allergy became a specialty. Its immunologic aspects invited research, from which important discoveries evolved. Like other specialties, the study of allergy drew away from general medicine. A phraseology of its own was developed, with such words as "atopy," "atopic reagin," "skin sensitizing antibody," "thermostable antibody" and others.

During this developmental stage there were two guiding principles. One was an implicit reliance on the cutaneous test, although doubts were expressed early, and the second was that if a patient reacted positively to the test the substance responsible for it was the cause of his symptoms and was removed completely, whenever possible, from his environment. The first principle is understandable, for the tuberculin test of the skin was known to indicate the presence of tuberculosis of the lungs and other organs. As a matter of fact, the similarity of the two phenomena of hypersensitiveness led to the adoption of the term "allergy" for both.

If a patient reacts positively to a cutaneous test with one allergen, he is apt to react to tests with many. The application of the second principle, namely, that each of these substances should be excluded absolutely from his environment, tended to produce difficulties. Such measures as omitting a large number of essential foods to the point of undernutrition, discarding overcoats, sweaters, blankets and rugs and even removal of overstuffed furniture from the house if a positive reaction to feathers appeared on the skin were not uncommon practice. These measures were supplemented by injections of mixtures of many allergens in the hope of rendering the patient less sensitive. Unfortunately, such treatment was too often unsuccessful, and then it became an absurdity in the opinion of referring physicians, who also were not sufficiently successful in treating their patients on the basis of positive reactions to cutaneous tests with allergens then on the market. To be sure, many patients did well, but it was the extreme measures then in vogue that made allergy unpopular, and from the perspective of general medical practice it reached a low ebb.

During the last fifteen years a more rational viewpoint has developed. Fallibilities in interpretation of cutaneous reactions became recognized and their proper evaluation formulated. Moreover, a guiding principle became emphasized, namely, that for symptoms to occur there must be sufficient contact with the offending allergen as well as adequate absorption of it. This led to the corollary that patients who have symptoms frequently or continually, and these are the ones who seek medical attention most, must be exposed to some common allergen in their environment. As a matter of practice, it has been found that there are not many allergens in the ordinary surroundings that cause frequent symptoms. It is a statistical fact that feathers, dust, house pets, milk, wheat and a few others are responsible for many cases. Some occupational environments, such as barns and bakeries, present particular problems, but these as a rule are more obvious than obscure. There may or may not be a correlation between the allergens to which a patient is clinically sensitive and positive reactions of the skin.

Emphasis on the fact that most continual symptoms of allergic asthma are due as a rule to comparatively few allergens is having a definite influence on the practice of allergy. In the first place, standardized and approved lists of allergens for routine testing of the skin have been reduced from many hundreds to dozens. Of more significance is the emphasis on the elicitation of a proper history, which includes environmental and dietary factors and differential diagnosis, rather than on cutaneous testing. This alone often reveals the clue to the cause of trouble.

More and more, general practitioners and specialists are becoming aware of this emphasis. Physicians in increasing numbers are taking courses in allergy, and the sale of books on allergy never was so great. A careful elicitation of the history, knowledge of allergens, the correct performance and interpretation of a limited number of cutaneous tests, the proper way of giving injections for hay fever, the risks involved and the manner of creating a dust-free environment and elimination diets comprise the measures with which allergy is now being combated by an increasing number of physicians.

To be sure, a concentrated course for a week or two by no means equips one to practice allergy, but it does teach the essentials. It provides sufficient knowledge to indicate which problems are difficult and which are simple and may respond to the proper application of fundamental principles. Unfortunately, many physicians attempt to practice allergy even without this limited information, but aside from that situation and from the question of how much training one should have there is no doubt that whereas in the earlier years allergy was treated largely by allergists now it is becoming more and more integrated into the general practice of medicine. This differs in no way from experience in the field of cardiology, gastroenterology and other specialties.

At the present time the laity and many members of the medical profession still believe that allergy accounts

---

From the Department of Internal Medicine, Washington University Medical School, and Barnes Hospital.

Read before the Section on Miscellaneous Topics at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

for many more of the ills of the flesh than it really does. Part of this belief is traditional, and part is due to the appearance of books and articles, written in good faith, in which allergy is held responsible for a large number of disorders of various systems of the body and the allergic person is alleged to be beset on all sides by harmful allergens in his food and environment and is warned that contact with even a minute amount of these may be his downfall. Since this is not correct, an evaluation of the true status of clinical allergy and of what can and cannot be accomplished by treatment must eventually be made.

One of the few advances in clinical allergy has been the realization that many cases of intractable asthma, urticaria and vasomotor rhinitis, especially those in which the trouble begins after the third decade of life are different from typical cases of hypersensitiveness to environmental allergens. In the former cases evidence of such hypersensitiveness is lacking. Infection plays an important etiologic role in some cases, but it remains debatable whether true bacterial allergy exists in such instances. In others the cause is unknown, and since no evident extrinsic or environmental circumstances are apparent, these have been designated as cases of "intrinsic" allergy since there is no direct approach in terms of removal of offending allergens or "desensitizing." These are the severe intractable cases, sometimes with serious complications, and in asthma deaths occur mostly among patients with this condition. It is such patients who are eventually referred to the allergist, but unfortunately since there is no specific treatment they are subjected to the process of trial and error and treatment is symptomatic and far from satisfactory.

Despite a large amount of literature on clinical allergy, little of consequence has been discovered in the last decade. The recognition of "intrinsic" causes, still unaccepted by many, and the advent of antihistaminic drugs are the more important advances. This does not hold true for some experimental aspects of allergy or important discoveries that have clinical bearing made by pathologists and immunochemists, to be spoken of presently.

Clinical allergy is at a fork in the road. One branch is a continuation of present practice, which is largely a matter of routine procedures with a high degree of specialization and a tendency to withdraw farther away from internal medicine. There is on the other hand a growing recognition that this specialty as now practiced is but a relatively small part of the field of allergy although it is important since it deals with a large number of afflicted persons and methods of successful treatment. However allergy has far wider implications than this.

Bacterial allergy, not as it concerns asthma but with respect to its role in rheumatic fever as well as its role in tuberculosis, brucellosis and other infectious diseases, is of significance.[1] The importance of hypersensitiveness to simple chemical substances is coming to be realized and has wide application not only in contact dermatitis but in drug allergy. As man is becoming exposed to an expanding list of chemical agents hypersensitiveness to these is increasing. Knowledge of the underlying mechanism involved is being unfolded by immunochemists.[2] Moreover, the suggestive revelation that toxic and allergic tissue reactions to sulfonamide compounds and possibly to other drugs are all of the same nature, as interpreted by pathologists, increases the importance of drug allergy.[3] The correlation of a triad of symptoms of serum sickness, namely, fever, urticaria or purpura and arthralgia, with the same triad of symptoms in rheumatic fever, some drug allergies and allergic purpura is attracting attention, and abroad a relationship has been found also with periarteritis nodosa and lupus erythematosus. Vascular allergy as demonstrated by periarteritis nodosa and by the experimental production of the lesions of this disease and of the Aschoff bodies of rheumatic fever in the same rabbit after sensitization with horse serum has introduced a new and provocative clinical concept.[4]

It is encouraging that these allergies are now appearing on the programs of meetings of allergists, internists and pathologists and are attracting increasing attention A few allergists have begun to engage in research on them. However, the great majority of allergists still are concerned largely with conventional and specialized technics. The more specialized these become the farther they are separated from the essential implications of internal medicine.

The scope of allergy requires a broad knowledge of medicine, which has led to the requisite imposed by recognized boards that in order to specialize in allergy one must first be certified for the practice of internal medicine or pediatrics. This rule has met with protest. Moreover, if a younger man wishes to specialize in allergy today and be certified by accepted subspecialty boards, he must fulfil rigid requirements. Certainly, if one is to become concerned with the newer aspects of allergy as well as with the conventional ones, he must have a prepared mind since so much is involved.

The future progress of the study of allergy lies in attracting the interest of such men away from the restricted applications of this specialty to the broader ones, as well as in increasing the interest of physicians in many fields of medicine. This should draw allergy closer to general medical practice and lift it to a higher level.

ABSTRACT OF DISCUSSION

Dr. Stearns S. Bullen, Rochester, N. Y.: Every physician, whether his interests are limited to a special field or whether he works with general medical conditions, must be concerned with the problems of allergy, because major allergic diseases occur in 7 to 10 per cent of the population. They affect all age groups, they tend to recur over periods of years, they affect many organ systems and, although the covering and lining membranes, that is, the skin and the mucous membranes of the respiratory and digestive tracts, bear the brunt of the reaction, the functions of the circulatory and nervous systems are usually disturbed. The implications of the increasing incidence of sensitivity to such chemical compounds as the new synthetic drugs and the plastics used in industry cannot be overlooked. Fortunately, one or more specific causes can be found in a large proportion of cases by means of an adequate history and appropriate tests of the skin or mucous membranes. A knowledge of the natural course of the disease and of the variations which occur in different circumstances is a requisite for the history taker. He must be prepared to spend sufficient time to get a detailed account of the patient's environment and habits. He requires a working knowledge of the distribution of the substances which the history may indicate are offending factors. This may involve acquaintance with the use of such diverse materials as those handled in a beauty parlor or the type of glue used on a wooden airplane wing. It is pleasing to hear a careful clinician like Dr Alexander emphasize that a few dozen properly chosen and properly evaluated skin tests will give adequate information in most cases. With every positive test it is necessary to determine whether contact with this substance seems adequate to explain the symptoms and whether the patient comes in contact with this substance. The allergic patient is not exempt from disease due to causes other than allergy and is entitled to study from a broad medical viewpoint.

---

[1] Rossele, R.: Die morphologischen. Äquivalente der Allergie. Acta rheumatol. **8**: 1, 1936. Lichtwitz, L.: Pathology and Therapy of Rheumatic Fever, New York, Grune & Stratton, Inc., 1944. Cavelti, P. A.: Autoantibodies in Rheumatic Fever, Proc. Soc. Exper. Biol. & Med. **60**: 379, 1945.

[2] Landsteiner, K., and Chase, M. W.: Studies on the Sensitization of Animals with Simple Chemical Compounds, J. Exper. Med. **66**: 337, 1937; **69**: 767, 1939; **71**: 237, 1940; **73**: 431, 1941. Sulzberger, M.: Dermatologic Allergy, Springfield, Ill., Charles C Thomas, Publisher, 1940.

[3] *Black-Schaffer, B.: Anaphylaxis Due to Sulfonamide Drugs, Arch.* Path. **39**: 301 (May) 1945.

[4] Rich, A. R., and Gregory, J. E.: The Experimental Demonstration That Periarteritis Nodosa Is a Manifestation of Hypersensitivity, Bull. Johns Hopkins Hosp. **72**: 65, 1943; Experimental Evidence That Lesions with the Basic Characteristics of Rheumatic Carditis Can Result from Anaphylactic Hypersensitivity, ibid. **72**: 239, 1943.

Special Article

PHYSICAL FITNESS

Report of the Subcommittee of the Baruch Committee on Physical Medicine

ROBERT C. DARLING, M.D., Chairman
LUDWIG W. EICHNA, M.D.
New York
CLARK W. HEATH, M.D.
Boston
and
HAROLD G. WOLFF, M.D.
New York

A clear definition of the term physical fitness is elusive. Physical fitness in the broader sense with which the physician is concerned has no meaning unless ualified "for what." The purely physical requirements f various tasks, whether they be jobs or physical feats, are too varied to be determinable by any one set of criteria. Physical fitness should be discussed as a fundamental quality of a person which describes the satisfactory integration of his muscular, cardiovascular and nervous systems and could be evaluated separately by appropriate tests from the psychologic and emotional factors which modify his actions. This distinction between physical fitness, which is a simple physiologic attribute, and the more general fitness which is affected by the complexities of the personality and its environment is impractical and usually impossible with the knowledge and test methods available at present. Therefore, the term physical fitness as used in this report has a broader meaning than that frequently used and includes the variety of factors which affect human performance. Many instances can be cited in the army and in civilian life of persons well endowed physically who could not carry on practical tasks because of the emotional and psychologic elements involved. Likewise, there are many persons with poor physical equipment and even anatomic defects who, judged by accomplishments, are fit to carry on their jobs. The only final test of fitness seems to be the ability to perform the task desired without undue fatigue or exhaustion, and the qualities making this possible are those of the total personality.

The wide connotations and lack of definition of the unqualified term physical fitness are emphasized if one considers the groups of persons for whom it may be desirable to estimate physical fitness. We may list the following seven broad groups, no one of which, however, is simple and homogeneous (these are but examples; one could add infants and children, and other groups will come to mind):

1. Athletes, persons of school and college age and soldiers and sailors in training, considered as athletically occupied. Various degrees and kinds of fitness for different sports may require emphasis on differing aspects of physical fitness even in this sphere.
2. Laborers, including those factory workers, farmers and miners who are required to do strenuous physical tasks.
3. Sedentary workers, including the white collar class, professional groups, business executives and supervisory factory workers.
4. Workers in specialized duties, such as airplane pilots, policemen, locomotive engineers, submarine personnel and other specialized personnel of the armed forces.
5. The functionally handicapped (otherwise healthy). Here would be included the orthopedically handicapped and special subgroups such as the blind, the deaf and the mentally deficient.
6. Convalescents, which might include both those recovering from acute self-limited infections and those with more chronic debilitating diseases.
7. The aged, including those suffering from changes attributable to age, without specific disease.

The first four of these groups contain those who are presumably well and healthy; the last three groups concern those that present more distinctly medical problems.

Even in the limited fields of athletic fitness and fitness for hard muscular work the picture presented by previous workers is not simple. The following list is of the four main aspects of fitness emphasized in this group. A similar approach to the subject should preface the study of fitness for any task.

1. General cardiorespiratory, vascular and neuromuscular fitness: This concerns the ability to perform work requiring the more strenuous use of large muscle groups and placing stress on the heart and lungs, the blood supply to the muscles and the internal economy of the body.
2. Skill and agility: This involves the smooth integration of the neuromuscular system for either delicate or gross tasks. In part, it is an inborn characteristic; in part, it is the result of past experience. All tasks require some degree of this quality. It includes not only skill in an accustomed task but also rapid adaptability to new tasks.
3. Special strengths: Actual physical strength for specific tasks. The stoutness or mass as well as quality of bone, muscle and joint here come into consideration.
4. "Motivation": By this we mean the goal which a man seeks consciously or unconsciously by his efforts, his "will to do" and "will to succeed." It is so intimately linked with physical fitness, however classified, that it should be considered in any investigation of physical fitness.

These four subdivisions present only a sketchy outline of the aspects of athletic fitness. Different aspects of fitness are brought out by exercise of short, moderate or long duration, although endurance to severe exercise of several minutes' duration and that to more moderate

---

From College of Physicians and Surgeons, Columbia University (Dr. Darling), New York University College of Medicine (Dr. Eichna), Department of Hygiene and the Grant Study, Harvard University (Dr. Heath), and Cornell University College of Medicine (Dr. Wolff).

Persons who supplied helpful critical comments on preliminary draft of this report are: Frederick W. Cozens, Director of Physical Education, University of California, Berkeley, Calif.; George G. Deaver, M.D., Physician-in-charge of Physical Medicine, New York University College of Medicine, New York; David B. Dill, Ph.D., Director, Medical Laboratories, Edgewood Arsenal, Md.; Ashton Graybiel, M.D., Medical Director, School of Aviation Medicine, Naval Air Training Bases, Pensacola, Fla.; Frances A. Hellebrandt, M.D., Director, Baruch Center of Physical Medicine, Medical College of Virginia, Richmond, Va.; Robert E. Johnson, M.D., Director, Army Medical Nutrition [illegible] Karpovich, M.D., Professor of Physiology, [illegible] Mass.; Ancel Keys, Ph.D., Director, Labor[illegible] University of Minnesota, Minneapolis; Leonard A. Larson, Assistant Professor of Education, New York University School of Education, New York; John L. Patterson Jr., M.D., School of Aviation Medicine, Naval Air Training Bases, Pensacola, Fla.; Sid Robinson, Ph.D., Associate Professor of Physiology, Indiana University, Bloomington, Ind.; Ernst Simonson, M.D., Laboratory of Physiological Hygiene, University of Minnesota, Minneapolis; Craig L. Taylor, Ph.D., Associate Professor, Department of Engineering, University of California, Los Angeles, and Augustus Thorndike, M.D., Boston.

exercise of long duration, such as mountain climbing, have great similarity. However, the ability to expend a single sudden burst of energy would appear to involve different processes than those exercises leading to gradual exhaustion. Resistance to fatigue has not been mentioned in these subdivisions since it comes in all. The factors leading to fatigue and the "breaking point" are nonetheless important and worthy of separate consideration. Likewise, the study of physical constitution and body build enter into the four aspects mentioned.

The subdivision motivation, although placed last in the list, might well be considered first in most practical situations, especially in the interpretation of laboratory tests. Universal experience has been that the physical could not be adequately dissociated from the psychologic aspects. In fact, the outcome of even simple and rather artificial tests of physical performance is often determined by various psychologic factors lumped together under the term "motivation." Of course, motivation is often quite different in a test situation than in the tasks of daily life.

Aside from the strong and often unpredictable psychologic factors involved, there are at least two other elements about which we know little which make the establishment of universal standards for fitness hazardous. The first is the influence of age and sex on the physical equipment of a person. The tests of "athletic" physical fitness applied to large numbers of persons have been for the most part on young persons, chiefly men. As will be indicated later, more information is needed about the exercise physiology of older persons in spite of the excellent start in the work of Robinson.[1] The second influence against universal standards of fitness is the large number of persons with physical defects who cannot be judged by fixed standards but who, we know, can often carry on an active and useful life, and so by that ultimate criterion can be considered fit.

In summary, then, physical fitness is a complex concept difficult to define and more difficult to measure but one which in its most useful form must evaluate the total individual. This became apparent even in such relatively homogeneous groups as the army; it is accentuated to the physician who must deal with the general population, a heterogeneous group consisting as it does of persons of both sexes, all ages, varying physical endowments and diverse psychologic environments. It seemed advisable, therefore, to point out at the outset some of the weaknesses of certain proposed concepts of physical fitness and of tests to measure it and to emphasize the inadvisability of attempting to set up universal standards. In our opinion the dangers of the oversimplification of the concept of fitness and the misapplication of simplified fitness tests are great. Moreover, it is unwise, and indeed impossible, to define standards of physical fitness at the present time. These negative conclusions by no means invalidate the concept of physical fitness; rather they serve the useful purpose of indicating just where knowledge of the subject stands, thus preventing conclusions on false premises.

In place of simple tests and standards we offer general principles which outline the methods by means of which a useful approach can be made toward the appraisal of physical fitness. Most of the methods are those which the physician already uses, consciously or unconsciously. The emphasis is on the dynamic or functional rather than the anatomic or static. As knowledge advances, the principles which underlie the functionally sound body and well adapted person will become clearer even though at present they can be stated only as generalities.

THE ORTHODOX MEDICAL EXAMINATION

The purpose of the usual medical examination is to discover organic physical defects. It is highly desirable, however, to extend the scope of the physical examination. In relationship to fitness it is necessary not merely to discover defects but to consider the potential performance of the patient in spite of his defects. For example, defective sight or hearing, especially if helped by glasses or hearing aids, may be no handicap to daily life. Good insight and strong motivation on the part of the patient can overcome even severe handicaps. In general one may say that organic disease and abnormalities affect fitness only when they reduce physical and mental activity below that necessary for the effective carrying on of the patient's job or when they reduce the prospect of continued life. Again the emphasis is on the dynamic state of the individual, rather than on the anatomic aspects of illness.

The routine medical history and physical examination can and should do more than assess physical defects. As has been seen, the ultimate test of fitness is the ability to perform the required tasks of daily living. Thus the medical history should include the reactions of the patient to his daily activities. Chronic or cumulative fatigue, diminution in effective work and excessive absenteeism from the job are all evidence of unfitness, and if no organic cause is found, search for social or personal factors may reveal the cause.

FUNCTIONAL TESTS AS AN ADJUNCT TO PHYSICAL EXAMINATION

Although simple forms of exercise are used by most physicians as part of the physical examination to assess the cardiovascular system, it should be profitable to extend this form of examination to learn more about the physiologic state of the individual as it may bear on fitness. No single form of exercise test can be suggested for this evaluation, but some of the rules established by physiologists in the study of homogeneous groups may be mentioned as a guide.[2] It should be mentioned again that the performance on any test involving general exercise is the sum of the patient's cardiovascular-muscular equipment, plus his desire and willingness to try hard. Actually, the psychologic drive, the will to do, should be considered a part of fitness. The difficulty with this component of fitness is that it may play an altogether different role in the test than in daily tasks or emergencies, and therefore escape evaluation.

The physician is often ill trained to evaluate the dynamic state of the subject. Such training should begin early in medical school. Along this line Landis[3] has reported a reorganization of his laboratory course in physiology, which should give better emphasis to man as an integrated organism, reacting to various stress conditions. The same approach might well be incorporated in other medical school departments so that the physician will come to consider the patient as a whole in relationship to the various internal and external stress factors. Obviously the technics for making this evaluation are often lacking, but unless at least the point of view is acquired early in a physician's career, progress will be slow in his ability to evaluate functional health, which is practically a synonym for "fitness."

---

[1] Robinson, S.: Experimental Studies of Physical Fitness in Relation to Age, Arbeitsphysiol. **10**: 251, 1938.

[2] Karpovich, P. V.; Starr, M. P., and Weiss, R. A.: Physical Fitness Test for Convalescents, J. A. M. A. **126**: 873 (Dec. 2) 1944.

[3] Landis, E. M.: Physiology for Medical Students at Harvard, Harvard M. Alumni Bull. **19**: 9, 1944.

Workers in the field of exercise physiology agree that the physiologically efficient subject will show the following manifestations during and after a bout of strenuous exercise:

1. Ability to work at a high metabolic rate without undue disturbance of the cardiovascular system. At the same time the ability to increase cardiovascular work to very high levels before exhaustion.
2. Ability to continue to maintain a high metabolic rate.
3. Prompt return of the cardiovascular system toward the resting state after stopping exercise.
4. Postexercise well-being and the ability to continue usual activity.
5. Adequate vasomotor response both when rested and after exercise.

Although the basis for these statements is the study of healthy young men, it is generally and probably correctly assumed that the same manifestations, graded downward on a sliding scale of physical work, may also apply to healthy man as he ages or as he convalesces from an illness.

Test exercises to assess the capabilities of the cardiovascular-muscular system should be severe enough to place considerable stress on the subject, and should involve a type of exercise using large groups of muscles and requiring a minimum of skill. It is generally agreed that several test exercises are preferable to one.

The rules for test exercise as an adjunct to the usual physical examination cannot be made more specific in our present state of knowledge. It is believed that these principles hold in patients with loss of part of their muscular apparatus as in paralysis, for here one tests the function of that which remains, but of course special exercises must be devised for persons suffering particular defects. Tests that apply to practical work situations are to be recommended.[4] The efficient working of the circulatory and muscular apparatus can be considered an attribute of part of a man as well as a whole man. This attribute must be present sufficient for the patient to carry on his daily work and pleasure, and probably enough more to meet emergency needs, before he can be considered physically fit. The converse is not true; he may have an efficient body but not use it to carry on ultimate tasks by which one may judge him fit.

The physician can attempt to evaluate the first four points from observing the patient during and after exercise. The fifth point, concerning vasomotor response, is not seen directly from response to severe exercise. Since some manifestation of vasomotor stability and prompt adaptability have been the basis of many of the proposed tests of physical fitness, it is important to consider them. Among normal young men it has been common experience that vasomotor adaptability does not necessarily parallel performance ability in strenuous tasks. Therefore it is probably wise to consider performance ability and vasomotor adjustment as dissociated manifestations of a well functioning body. The advantage to the individual of a vasomotor system which adjusts readily to change in posture, heat and other stress conditions is self evident. Some method of evaluating it should be part of the physician's total assessment of the patient, whether it be the response of the patient's pulse and blood pressure to the excitement of a visit to the physician or a more elaborate test.

PSYCHOLOGIC EVALUATION

As was indicated early in this report the physical equipment of the patient and his physiologic response to stress are only a partial though necessary component of fitness. The final test is how he uses his equipment in his play and work. Although the judgment of the total individual, his will to do, his "motivation" and the factors behind it, may be said to be in the realm of psychiatry, many and perhaps most cases can be properly assessed by the discerning physician without special training. His approach need not involve highly specialized technics but will require an orderly evaluation of the patient from his history, his conversation, his general attitude and purposes in life, his reactions to simple situations (such as his reactions to the physical examination). The technics of evaluation by interview used by psychologists, personnel workers and others might be utilized with profit by the physician.[5] The best judgment will most often come from frequent contact when the patient is seen "as he is" in his work and under the stresses of his daily life.

Undoubtedly some psychologic situations are too complex to be approached by the physician without special training. In these cases the psychiatrist is essential as a consultant. In all situations requiring evaluation of personality the psychiatrist would be helpful, but it is obviously impossible to require a full psychiatric work-up for each judgment of fitness.

This discussion would not be complete without at least mention of the probable significance of fitness to the individual. It would appear that the chief objective of the attainment of physical fitness is to bring a person to that state whereby he can perform those tasks which will permit him to become an active member of society, economically independent if necessary. Moreover, he should be able to perform the tasks repeatedly without fatigue and have in addition a reserve to meet and sustain unexpected stresses, should they arise, without being incapacitated by them. A physically fit person will be able to meet these requirements and still maintain a sense of well-being. This picture of functional health is certainly an adequate goal. Actually there are no satisfactory data to predict that the physically fit subject will have a longer life span, a lower incidence of degenerative disease or a greater resistance to infection than his unfit confrere, although these relationships might well be studied further. However, in the psychologic and sociologic spheres various other possible benefits of fitness should be recognized, such as the aesthetic gains so often evident in body building or the frequently desirable personal discipline necessary for physical development.

Functional health cannot be attained by physical fitness alone, narrowly considered as a problem of the soma. To make judgments of physical fitness for the attainment of functional health and all that this may mean for the individual, one must include the study of the personality in a broad sense, distinguishing, if possible, the more constitutional patterns from what are more the product of environmental and cultural forces. Indeed, one may have to consider cultural patterns of family, race, religion and those of the age or time. The concept is thus a large one, impinging on many branches of the medical sciences and allied fields in the study of man.

---

[4] Deaver, G. G., and Brown, M. E.: Physical Demands of Daily Life: An Objective Scale for Rating the Orthopedically Exceptional, New York, Institute for the Crippled and Disabled, 1945.

[5] Bingham, W. V., and Moore, B. V.: How to Interview, New York, Harper & Brothers, 1934. Roethlisberger, F. J.: Management and Morale, Cambridge, Mass., Harvard University Press, 1941.

SUMMARY

Physical fitness describes the functional capacity of the individual for a task. It has no real meaning unless the task or job for which fitness is to be judged is specified. The fit individual can perform the task repeatedly without undue fatigue and has a reserve capacity to meet and sustain unexpected stresses which may arise. Because of the complexity of the concept and the wide variety of tasks carried on by different persons, universal standards for its evaluation are not feasible. Their establishment in any form would be a misleading oversimplification.

Physical fitness for a task depends on the physical equipment and physiologic competence of the subject for the stress which the task imposes, together with the complex psychologic factors grouped under the term "motivation." The physical and psychologic factors cannot be fully dissociated even in test procedures.

Since physical fitness involves more particularly a functional concept rather than an anatomic one, it is important that the physician be able to evaluate the functional capacity of his patient, whenever possible, by appropriate tests of working capacity and vasomotor response.

Since physical fitness is often governed by psychologic factors which overshadow the physical competence of the body, it is important for the physician to evaluate the total individual, with the help of the psychiatrist when necessary.

There is need for more data on physical capacity and physiologic adjustment in respect to age and sex factors, specific work situations in different environments, skills, strength and learning abilities in order to furnish guides to the physician in his judgment of a functionally normal body.

Clinical Notes, Suggestions and New Instruments

A MODIFICATION OF THE CROSBY-COONEY OPERATION FOR INTRACTABLE ASCITES DUE TO CIRRHOSIS OF THE LIVER

JERE W. LORD Jr., M.D.
New York

In 1946 Crosby and Cooney[1] revived interest in an operative procedure for the treatment of intractable ascites and reported several cases in which considerable improvement was obtained following operation. The procedure which they described had been employed from time to time for several decades but for a number of reasons had never become popular. They eliminated one of the difficulties by employing a glass button with a cap on it to prevent plugging of the lumen by omentum.

The principle underlying the operation is the transport of ascitic fluid from the peritoneal cavity through a glass button to a subcutaneous pocket where it can be absorbed by the lymphatics. When the operation is successful, the patient is spared the unpleasantness of and repeated need for paracenteses and, secondly, has in a sense a slow constant clysis of a fluid which may contain a significant amount of protein. In some patients the loss of protein due to repeated paracenteses may be considerable.

In January 1947 I saw in consultation a patient with advanced cirrhosis of the liver and an uncontrollable wasting ascites. He had been subjected to the Crosby-Cooney operation approximately three months earlier and for a period of two months had obtained almost complete relief from his ascites. However, after two months the subcutaneous pocket stopped absorbing fluid and the ascites reaccumulated rapidly, necessitating resumption of paracenteses. The man was unfortunately too ill to contemplate a portacaval anastomosis.[2]

When this case was discussed with Dr. Irving S. Wright, he pointed out that operations for chronic lymphedema of the legs by the Kondoleon procedure or one of its modifications are most effective when the deep fascia is removed along with the edematous fat, thereby exposing the lymphatics of the muscles. With this suggestion in mind, on March 20, 1947, I carried out the Crosby-Cooney operation on a 55 year old Chinese man, but in addition to their technic removed approximately a 6 by 6 inch (15.2 cm.) layer of fascia, thereby exposing portions of the following muscles: the internal oblique, the right rectus and transverse abdominal muscles. Also Scarpa's fascia was excised to expose the fat superficially. Sufficient fascia was left for the closure of the mid right rectus incision and for the stability of the button.

REPORT OF CASE

T. T., a 55 year old Chinese man, was admitted to the Gouverneur Hospital[3] on Sept. 19, 1946. Because of language difficulty the only facts obtained were that the patient had had a swollen abdomen and a painful umbilical hernia for some time. Physical examination revealed an alert, emaciated man of stated age with decided abdominal distension, prominent periumbilical veins, a large thin-walled umbilical hernia and evidence of a large amount of ascitic fluid. The spleen could not be palpated but the edge of the liver extended 2 to 3 fingerbreadths below the costal margin. The heart showed an auricular fibrillation which was confirmed by an electrocardiogram. The lungs were clear although the diaphragms were considerably elevated. There was no peripheral edema. Laboratory studies showed the following: The urine was normal, the serum protein was 6.5 Gm. per hundred cubic centimeters, with the albumin 2.8 Gm. and globulin 3.7 Gm; the cephalin flocculation reading was 4 plus; the icterus index was 18; cholesterol was 75 mg. and 66 mg. with esters of 10 mg. and 41 mg. on two occasions; nonprotein nitrogen was 43 mg. per hundred cubic centimeters; the Wassermann reaction was negative; an esophagram showed no varicosities. The hepatic function tests were repeated with essentially the same results on Jan. 20 and Jan. 28, 1947. Also the prothrombin time by Quick's method was nineteen seconds for the patient and the control. Intravenous pyelograms were normal.

Dates and Volumes of Paracenteses

Date	Volume, Cc.	Date	Volume Cc.
10/ 5/46	9,200	1/18/47	6,500
10/11/46	2,500	1/29/47	10,000
10/26/46	7,250	2/ 4/47	8,500
11/20/46	10,000	2/14/47	9,500
12/ 5/46	11,000	2/26/47	4,500
12/16/46	9,500	3/ 7/47	4,000

Course.—The patient was placed on a high protein, high carbohydrate diet with added vitamins, and his general condition improved somewhat. However, it was necessary to perform twelve paracenteses between Oct. 5, 1946 and March 7, 1947 (the table). In February the patient was digitalized without influence on the rate of formation of his ascitic fluid. On March 20, a glass button was inserted in the right lower quadrant and the fascia removed as has been described. At operation 6,000 cc. of clear ascitic fluid was collected. The liver showed a finely granular surface which was frosted with a whitish covering. It was enlarged and hard. The biopsy confirmed the diagnosis of portal cirrhosis of a moderate degree. The spleen was enlarged, being approximately three times normal size. The umbilical hernia, which before operation measured 10 cm. in diameter, had a small internal opening of 1 cm. The patient was allowed out of bed on the following day, and his postoperative course was uneventful. The pocket was full of fluid by the second postoperative day, but of great interest was the fact that scrotal or leg edema never developed as it had in Crosby and Cooney's patients. Further, between the eighteenth and the twenty-ninth postoperative day the fluid in the subcutaneous pocket disappeared; it has since remained completely empty. The umbilical hernia has remained level with the abdominal wall (the figure). When the patient was last examined, five and one-half months postoperatively, he was asymptomatic, able to carry on with his usual activities and was free from demonstrable ascites. The glass button could be palpated easily beneath the skin in the right lower quadrant. Analysis of the serum protein now showed a value of 7.3 Gm. per hundred cubic centimeters with an albumin-globulin ratio of 4.0 to 3.3. The cephalin fluocculation reading was 3 plus.

---

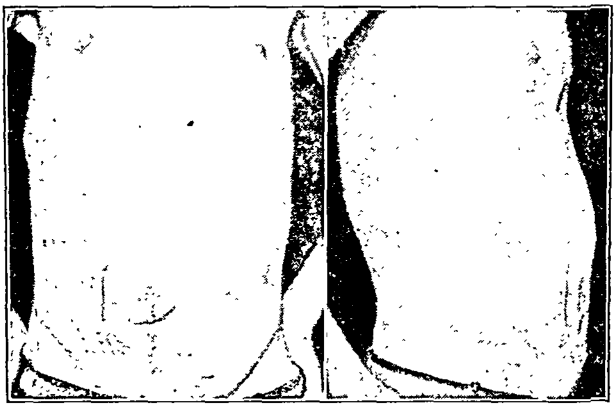
[1] Crosby, R. C., and Cooney, E. A.: Surgical Treatment of Ascites, New England J. Med. **235**: 581-585 (Oct. 17) 1946.

[2] Blakemore, A. H., and Lord, J. W., Jr.: The Technic of Using Vitallium Tubes in Establishing Portacaval Shunts for Portal Hypertension, Ann. Surg. **122**: 476-489 (Oct.) 1945.

[3] Service of Dr. Miguel C. Elias.

COMMENT

Patients with cirrhosis of the liver and intractable ascites present a real problem to the physician. In spite of the best of modern dietary regimens in some cases of cirrhosis ascitic fluid will continue to collect and require repeated paracenteses. This procedure is both annoying to the patient and not completely without danger of infection. The protein-containing ascitic fluid is lost, and this may be of considerable significance. There are two operative procedures which may help these patients. If there is evidence of esophageal varices and/or a history of massive gastrointestinal hemorrhage and the patient is in good condition then some kind of portacaval shunt should be carried out. However, if ascites is the only problem or if the patient is a poor operative risk, then the Crosby-Cooney button operation with the addition of fascial removal should be utilized. The operation is easy to perform, is considerably less trying on the patient than a portacaval shunt and when successful may bring about complete rehabilitation.



Anterior and lateral views of patient three and one-half months postoperatively. The umbilical hernia is flat and the subcutaneous pocket has disappeared. There is no evidence of ascites.

There unquestionably will be failures with the button operation but in a condition in which high grade invalidism exists, the possibility of helping, by this simple operative procedure, some of these patients with intractable ascites should not be overlooked.

SUMMARY AND CONCLUSIONS

The Crosby-Cooney glass button operation has proved to be worth while in some cases of intractable ascites. In order to facilitate greater absorption of the ascitic fluid from the subcutaneous pocket, a modification of the operation has been made by adding the removal of a large area of fascia with consequent exposure of lymphatics in the muscles. A case is reported which illustrates these points.

ADDENDUM

As a result of one failure in my series and data submitted by another surgeon who had three glass buttons plug with omentum, the following operative details should be employed in addition to the fasciotomy: 1. If an omentum of sufficient length to reach the lower part of the rectus incision is present it should be excised. 2. As much muscle is exposed as is possible through the incision by removing fascia not only lateral to the incision but also across the midline on the opposite side. 3. Great care must be used in closing the skin of the incision to prevent late leakage of ascitic fluid, which occurred in the case cited in this article on the twelfth postoperative day. Subcuticular nonabsorbable sutures are placed followed by end on mattress sutures which are not removed until the fourteenth to sixteenth postoperative days. 4. If ascites accumulates faster than the muscles in the pocket can absorb it, paracenteses should be performed not through the pocket but in the lower quadrant away from the pocket so that leakage will be minimal.

55 East Ninety-Second Street.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. Howard A. Carter, *Secretary.*

SOLO-PAK HEARING AIDS ACCEPTABLE

Manufacturer: Allen-Howe Electronics Corp., 150 Main Street, Peabody, Mass.

Three Instruments:

Model r, Red Case, Serial 7394, Magnetic Receiver
Model g, Green Case, Serial 7240, Brush Crystal Receiver
Model b, Black Case, Serial 7239, WE 724 Receiver

These three instruments are all assembled on stud-supported insulating sheets and enclosed in cases of a pliable plastic material, without wearing clips. The batteries are self contained, access to battery space being by zipper opening at the bottom of the case. Batteries are changed without removal of the unit from the case. The chassis can be removed from the case through this zipper opening to change cases or to make repairs. The receivers are connected by cord and plug to the chassis, with the cord coming out through a hole at the upper rear of the case.

Volume control (wheel type) is at one side of top of case, and there is a combination on-off tone switch at other side.

Dimensions and Weight

Dimensions: 120 by 51 mm. Weight: 198 Gm. (7 oz.).

Batteries

A battery: mercury, 1.2 volts.
B battery: zinc and carbon, 22.5 volts.

Current Drain Data

	A Battery		B Battery		
				Milliamperes	
Case	Volts	Milliamperes	Volts	Quiet	Squealing
Red	1.2	75	20	0.25	0.30
Green	1.2	50	22	0.30	0.45
Black	1.2	70	21	0.55	0.70

Acoustical Gain

Measurements were made of the acoustical gain in decibels for sound pressure level in a 2 cc. coupler over that pressure level at the microphone placed on the face of a 40 by 20 cm. baffle. The input level at each frequency was 0.02 dyne per square centimeter. Typical results are tabulated as follows (all instruments full on volume):

Frequency	256	512	1,024	1,200	2,250	3,100	4,096
Red case, 1 dot	27	34	41	47	57	34	22
Red case, 2 dots	23	30	38	43	54	32	19
Green case, 2 dots	40	46	60	52	53	32	30
Black case, 2 dots	28	37	43	46	48	33	16

Approximate values of maximum sound pressure levels in the 2 cc. coupler, with volume control set for full gain and tone setting 2 dots, are shown below:

	Red Case		Green Case		Black Case	
Frequency	Input Level	Maximum Output Level	Input Level	Maximum Output Level	Input Level	Maximum Output Level
600 cycles	65 db.	97 db.	65 db.	110 db.	65 db.	103 db.
1,024 cycles	65 db.	102 db.				
2,048 cycles	60 db.	104 db.				
2,250 cycles	55 db.	107 db.				

Intelligibility tests (random words) were made with a person of normal hearing seated inside a booth giving about 30 decibels in sound reduction. The speaking person was outside the booth using a normal tone of voice. These conditions are rather critical, since the signal to noise ratio in the instrument is much worse than that obtained in normal use. Scores made under these conditions are listed below:

Red case	58 per cent
Green case	48 per cent
(Hiss noise masked words badly)	
Black case	68 per cent

At the suggestion of the manufacturer these instruments were dropped from lapel height to a rubber-matted concrete floor and found to operate satisfactorily after several falls. The investigator, weighing 70 Kg., then stood on one of the instruments and caused no damage.

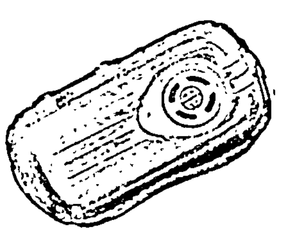
On the recommendation of the Consultants on Audiometers, the Council on Physical Medicine voted to include the three Solo-Pak Hearing Aids in its list of accepted devices.

ELECTRO-EAR HEARING AID MODEL C ACCEPTABLE

Manufacturer: American Earphone Co., Inc., 10 East 43d Street, New York 17.

The Electro-Ear Hearing Aid, Model C, is self contained, the battery compartment being accessible from the back of the case by means of a full length piano-hinged cover. The cream-colored plastic case has a wearing clip secured to the back.

Two wheel-type controls are placed on the instrument. The four position tone control is on the side of the case; the combination on-off switch and continuously variable volume control is centered on the top of the instrument.


Electroncar Model C

The receiver cord has plugs at both ends. Three crystal receivers were supplied for the tests, one large, one small and one special model.

Dimensions and Weight

Weight: 184.2 Gm. (6½ ounces).
Length: 14 cm. (5½ inches).
Thickness: 2.2 cm. (⅞ inch approximately).
Width: 6.6 cm. (2⅝ inches).

Battery Data

Usable batteries: A, 1½ volts; B, 30 volts.

Battery Drain Measurements

	Voltage	Current
A	1.4 volts	47 milliamperes
B (Quiet)	29 volts	1.3 milliamperes
(Squealing)	29 volts	0.9 milliampere

Acoustical Gain

Measurements were made of the gain in decibels in the sound pressure level set up in a coupler over the sound pressure level at the microphone set in the face of an 18 by 8 inch (40 by 20 cm.) baffle. The input level at each frequency was 0.02 dyne per square centimeter. A large crystal receiver was used.

Following are typical results obtained with the volume control full on, at two different settings of the tone control and seven frequencies:

Frequency	256	512	1,024	1,200	2,250	3,100	4,096
Tone Control Setting							
3 black dots	23	29	45	51	38	29	25 decibels
1 red dot	30	34	47	52	46	52	49 decibels

Approximate values of maximum pressure levels, at four frequencies set up in the regular coupler with volume control set for full gain and the 1 red dot tone setting are as follows:

Frequency	Input Level	Maximum Output Level
600 cycles	65 db.	104.5 db.
1,024 cycles	70 db.	113.5 db.
1,200 cycles	70 db.	115.5 db.
2,048 cycles	60 db.	100.0 db.

Zero reference level is 0.0002 dyne per square centimeter.

Intelligibility tests made with a hard of hearing subject gave scores of 85 per cent or better.

The Council on Physical Medicine voted to include the Electro-Ear Hearing Aid, Model C, in its list of accepted devices.

VACTUPHONE HEARING AID MODEL 3 ACCEPTABLE

Manufacturer: Allen-Howe Electronics Corp., 150 Main Street, Peabody, Mass.

This instrument is a plastic-cased hearing aid, using separate batteries. One five-prong plug, fitting into the top of the instrument, has both battery and receiver cords directly connected to it. The crystal receiver supplied is connected to the receiver cord by a plug. The switch is a push-pull type on the top of the instrument. Volume and tone controls are knurled wheel type, one on each side of the unit near the top. A two-directional wearing clip is riveted to the back of the case.

Dimensions and Weight

Dimensions: 95 by 57 by 22 mm.
Weight (including batteries): 266 Gm. (9.4 ounces)

Battery Data

A battery	1.4 volts	85 milliamperes
B battery (Quiet)	29 volts	1.3 milliampere
(Squealing)	29 volts	1.0 milliampere

Acoustical Gain

Measurements were made of the acoustical gain in decibels in the sound pressure level set up in a 2 cc. coupler over that pressure level at the microphone on the face of a 40 by 20 cm. baffle. The input level at each frequency was 0.02 dyne per square centimeter. Typical results are tabulated as follows:

Frequency	256	512	1,024	1,200	2,250	3,100	4,096
Tone low	36	42	58	51	33	33	26
Tone high	39	47	62	57	47	50	43

Approximate values of maximum sound pressure levels, at three frequencies set up in the 2 cc. coupler with volume set for full gain and tone setting high, are shown below:

Frequency	Input Level	Maximum Output Level
600 cycles	65 db.	114 db.
1,024 cycles	65 db.	125 db.
2,048 cycles	65 db.	107 db.

Intelligibility tests (random words) were made with a person of normal hearing seated inside a booth providing about 30 decibels in sound reduction. The speaking person was outside the booth using a normal tone of voice. The score made under these critical conditions was 84 per cent, considered very good.

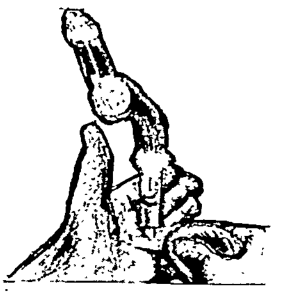
At the suggestion of the manufacturer, this instrument was tested by dropping it from coat lapel level on rubber-matted concrete floor. After three tests it continued to function.

The Council on Physical Medicine voted to include the Vactuphone Hearing Aid, Model 3, in its list of accepted devices.

NEBULIZER NASAL PREMO ACCEPTABLE

Manufacturer: Premo Pharmaceutical Laboratories, Inc., 443 Broadway, New York 13.

The Nebulizer Nasal Premo, like its predecessors, is a device designed to project aqueous solutions as a fine mist or aerosol for inhalation, in this case by way of the nose. It is intended to be used in administering water-soluble, nonvolatile medicaments of high potency, like epinephrine and penicillin, by way of the respiratory tract.



The apparatus is made of glass except for a small metal Venturi tube. The specimen submitted for testing nebulized 1 cc. of water in seven minutes when a hand-operated bulb was used. If compressed air is available, the process can be hastened. Two characteristics of the apparatus are the great fineness of the resulting spray or nebula and the completeness of the process, which latter implies that some control of dosage is achieved.

The Council on Physical Medicine voted to include the Nebulizer Nasal Premo in its list of accepted devices.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Twelve dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, MARCH 13, 1948

NOTICE

At noon Monday, March 8, the composing room staff of the press of the American Medical Association discontinued its work as part of a general disturbance in the printing trade now prevalent in Chicago. The compositors of the newspapers have been away from their work several months. During the past week, discussions between the printers of I.T.U., Local 16, and the Franklin Association, which is the organization of printing establishments, failed to reach any agreement.

The Journal comes somewhat late this week because of the necessity for emergency activities in getting it on the press. Arrangements are in process for publication each week utilizing new printing technics hich are being developed for the purpose.

The Board of Trustees of the Association hopes that subscribers to publications of the Association will make due allowances for difficulties during this period of adjustment.

FOREIGN BODY GRANULOMA

There are two outstanding varieties of foreign body granuloma—one is produced by animate and the other by inanimate material. The foreign substance may be introduced from without, as in injuries, or produced in the body, as in necrotic areas where cholesterol or fatty acid crystals are formed. Occasionally the foreign substance may be inserted in the form of sutures or ligatures in surgical operations or fortuitously as dusting powders on surgeons' rubber gloves, or even deliberately for "beautification."

The tubercle is the most prevalent and familiar example of foreign body granuloma due to a living substance. If, however, as Prudden and Hodenpyle showed many years ago, the tubercle bacillus is killed and dead bacilli are insufflated into the lungs of rabbits, the bacilli produce epithelioid tubercles which are histologically typical except, of course, for the absence of caseation. Nor, obviously, can they reproduce similar lesions locally or in distant tissues. The reaction is due presumably to the insoluble waxy substances with which the tubercle bacillus is provided. In practically all foreign body reactions the histologic picture bears a certain resemblance to the epithelioid tubercle, including the formation of giant cells, the cytoplasm of which is apposed to the foreign body; or, if the foreign body is small enough, it may be included in the cytoplasm of the giant cell and eventually disposed of.

In previous years it was common practice to use dusting powders for surgeons' rubber gloves that contained lycopodium spores. When introduced into the peritoneum and other tissues the spores produced so-called dust nodules, sometimes in sufficient numbers to cause intestinal obstruction and other surgical hazards. In time talc was substituted for lycopodium but likewise produced nodules which are equally dangerous. Nevertheless talc is still being widely employed as a dusting powder for surgeons' rubber gloves in spite of numerous reports of talc granuloma in the peritoneum, rectum, vagina, brain and elsewhere together with a propensity for the powder to convert surgical incisions into sinuses which refuse to heal.

In 1907 Whipple described a disease characterized clinically by gradual loss of weight and strength, by the presence of abundant neutral fat and fatty acids in the stools and by a form of fugitive arthritis. Anatomically, the disease is attended by deposits in the intestinal villi and mesenteric lymph nodes of neutral fats and fatty acids together with extensive infiltration of embryonal fat cells and the presence of variable numbers of multinuclear foreign body giant cells enclosing particles of degenerate fat. Since the appearance of Whipple's paper 7 additional cases have been described,[1] and the disease is now regarded, at least by some pathologists, as one in which degenerate fat cells produce a diffuse foreign body granuloma.

A localized nodular form of foreign body granuloma has been described under the designation of adiponecrosis. This granuloma is due to some sort of injury; such as the infusion of excessive quantities of saline solution into the subcutaneous fat, usually in the region of the breasts. The nodules are composed of mature connective tissue, fibroblasts, embryonal fat cells and giant cells containing remnants of degenerate fat. The lesions may rupture through the skin and give rise to obstinate sinuses.

In a recent report to the New York Pathological Society, Von Glahn and Hall observed a unique form of foreign body granuloma due to cotton fibers in the walls of the smaller pulmonary vessels, the fibers being introduced apparently from gauze filters used in the process of intravenous medication.

There is a form of foreign body granuloma in which giant cells enclose brightly staining, acidophilic, star-shaped bodies that have been variously interpreted as parasitic inclusions, astrospheres, fibrinoid deposits and paraffin or fatty acid crystals. This form of granuloma has been described in various situations, including the tissues of the face following the "beautician's" injection of paraffin for cosmetic purposes. In addition, the beautician is too often responsible for still other foreign body reactions which are not only disfiguring but are ultimate causes of mental perturbation that is even more pronounced than the distress caused by the wrinkles and other blemishes that his injections of paraffin are supposed to remove.

---

[1] Fitzgerald, P. J., and Kinney, T. D.: Intestinal Lipodystrophy (Whipple's Disease), Am. J. Path., 21: 1069. 1945.

PHYSICAL FITNESS AS PHYSICIANS SEE IT

Elsewhere in this issue is a report on physical fitness by four physicians acting as the Subcommittee on Physical Fitness of the Baruch Committee on Physical Medicine. The report rejects the concept that any one set of criteria can successfully predetermine fitness for the wide variety of tasks and activities of modern life. It also repudiates the idea that fitness can be determined on the basis of physical tests or medical examinations alone. In the words of the report, "The only final test of fitness seems to be the ability to perform the task desired without undue fatigue or exhaustion, and the qualities making this possible are those of the total personality."

Taking athletes as only one of the many broad groups for whom it may be desirable to estimate physical fitness, the report points out that tests in as many aspects as four (general cardiorespiratory, vascular and neuromuscular fitness; skill and agility; special strengths, and "motivation") still provide only a limited idea as to the all-round fitness of the person for athletic participation. The unsolved problem of resistance to fatigue is involved in every one of the foregoing aspects of appraisal.

The Subcommittee believes that it will eventually be possible to evaluate fitness, and it offers, instead of simple tests and standards, some general principles by means of which a useful approach can be made toward the appraisal of physical fitness. Among the general principles set forth, these are outstanding: 1. The orthodox medical examination and medical history should not merely discover defects or diseases but also should "consider the potential performance of the patient in spite of his defects" and "include the reactions of the patient to his daily activities." 2. Several test exercises severe enough to place considerable stress on the subject should be used as an adjunct to the medical examination to assess the capabilities of the cardiovascularmuscular system. (The suggestion is also made that training of medical students in the use of such tests should begin early in medical school.) 3. Through "an orderly evaluation of the patient from his history, his conversation, his general attitude and purposes in life and his reactions to simple situations" the physician should form a judgment as to "the total individual, his will to do, his 'motivation' and the factors behind it." In some cases the help of the psychiatrist may be necessary in this latter evaluation.

Though this report will be disappointing to the physician seeking a simple answer to the problem of evaluating fitness in his patients, the statement merits serious study. In the periodic health examination the emphasis must be placed "on the dynamic state of the individual, rather than on the anatomic aspects of illness." Accomplishment of this proposal will certainly require both time and effort, but the adaptation of functional tests already developed in the field of physical education, and of the interview technics developed by psychologists and personnel workers, might well facilitate the process.

Current Comments

THE ROLE OF ACETIC ACID IN METABOLISM

In the oxidation of various food substances in the animal organism, the various metabolites are probably changed to a common substance and each metabolite is oxidized through this substance in a common pathway. Apparently this is the system operative in animal metabolism; the common substance to which foodstuffs are changed appears to be acetic acid or some closely related compound. Ever since the classic studies of Neubauer, Knoop and Dakin some forty years ago, acetate or some closely related compound has been recognized as a principal intermediate in the metabolism of fat. It now appears[1] that it may also be an intermediate in the final disposition of carbohydrate. Its accumulation may be demonstrated when pyruvate is incubated with slices of tissue in the presence of fluoroacetate, an inhibitor of further oxidation of acetate. The acetate formed in animal metabolism is removed so rapidly in further reactions that its presence in the tissues is detectable with difficulty. The acetate appears to be oxidized principally in the citric acid cycle, a device originally thought to be active only in the oxidation of carbohydrate. It serves also as an important precursor in the formation of cholesterol, the sex hormones, protoporphyrin, purines, acetoacetic acid and the acetyl sulfonamide and acetyl amino compounds. Carbohydrates and fats appear to give rise to slightly different forms of acetate, since the carbon atoms derived from these substances take different positions in the ring of the purine nucleus and also react differently in acetylation reactions. Acetate may also be changed into glycogen, apparently through the reversible reactions which relate carbohydrate to the various acids of the citric acid cycle. The dual role of acetate in both carbohydrate and fat metabolism appears at first sight to be incompatible with present concepts of the ketogenic nature of fat and the antiketogenic nature of carbohydrate. Carbohydrates, it would seem, cannot be antiketogenic if they may be formed from the acetate, the same substance which

---

1. Ploch, K.: The Metabolism of Acetic Acid in Animal Tissues. Physiological Reviews 27: 574 (Oct.) 1947.

forms acetoacetic acid. These concepts may be reconciled only through the realization that there are two different factors involved in the formation of a substance such as carbohydrate. The one factor refers to the amount, as it is usually determined in quantitative analysis; the other refers to "replacement," which may at present be followed only by the use of labeled atoms or isotopes. Acetate formed from fat can replace carbohydrate, but it cannot increase the amount present in the organism because the process by which it is utilized requires the participation of carbohydrate itself. This explains why fatty acid and acetate do not increase glycogen stores in the starved or diabetic animal. Many phases of the role of acetate in tissue metabolism await further investigation. One of the major questions remaining is the exact intermediate form in which acetate undergoes reactions.

FOLIC ACID VERSUS LIVER EXTRACT

Kracke and Riser[1] of the Hematology Clinic, Medical College of Alabama, compared the therapeutic efficiencies of folic acid and liver extract in the treatment of pernicious anemia. In 1945, following Angier's[2] successful synthesis of folic acid, numerous clinical investigators reported its successful therapeutic use in different blood dyscrasias.[3] For comparison of its therapeutic efficiency with that of liver extract, Kracke and Riser selected a group of 4 untreated cases of classic addisonian pernicious anemia in severe relapse. All patients in this group were hospitalized for thorough study. Control observations were made prior to the institution of folic acid therapy. In addition to the usual laboratory procedures, sternal marrow aspirations, complete roentgenologic and fluoroscopic studies of the gastrointestinal tract and gastric analyses were done on each patient. None of the patients exhibited involvement of the central nervous system. A positive hematologic response to folic acid was noted in each case. Following daily oral administration of 20 mg. folic acid, the initial erythrocyte count of 770,000 per cubic millimeter in a typical case was increased to 2,000,000 by the end of twenty days and to nearly 4,000,000 by the forty-fifth day. The initial hemoglobin reading of 3 Gm. was increased to approximately 8 Gm. This seven week treatment was followed by a daily administration of 10 mg. folic acid by mouth. On this reduced dose all patients have been maintained in a state of complete hematologic remission to the date of this report (seven months later) In none of the patients has there developed disease of the central nervous system. Folic acid thus appears to be equally effective with liver extract in the treatment of pernicious anemia. Liver extract certainly contains an active component other than folic acid, since the potency of liver extract is greater than can be accounted for on the basis of its folic acid content. This second antianemic factor in liver extract has not yet been determined.

---

[1] Kracke, R. R., and Riser, W. H.: *Proc. Soc. Exp. Biol. & Med.* **64**: 179, 1947.

[2] Angier, R. B., and others: Science **102**: 227, 1945.

[3] Spies, T. D.; Vilter, C. F.; Koch, M. B., and Caldwell, M. H.: South. M. J. **38**: 707, 1945. Moore, C. V.; Bierbaum, O. S.; Welch, A. D., and Wright, L. D.: J. Lab & Clin. Med. **30**: 1056, 1945 Darby, W. J., Jones, E., and Johnson, H. C., J.A.M.A. **130**: 780, 1946. Goldsmith, G. A., J. Lab. & Clin. Med. **31**: 1186, 1946. Doan, C. A.; Wilson, H. E., Jr., and Wright, E. S.: Ohio State M.J. **42**: 139, 1946. Zuelzer, W. W.: J.A.M.A. **131**: 7, 1946.

THERMAL SEDATION

According to experimental evidence recently reported by Cowles and Nelson[1] of the Department of Preventive Medicine, University of California at Los Angeles, a tremendous field awaits study of the effects of altering body temperature on the course of disease, especially when toxic factors are concerned. Their conclusion was based on a study of the effects of low temperatures on the symptoms of tetanus toxin in the desert iguana. This lizard was selected because of its wide range in temperature tolerance and its similarity to mammals with respect to its optimum temperature (36 to 41 C.). In preliminary experiments lizards weighing 65 Gm. were injected intramuscularly in the femoral region with massive doses of tetanus toxin and exposed to normal room temperatures (24 to 26 C.). Thirty-six hours after inoculation the first symptoms appeared as slight tremors in the head and caudal regions. Two hours later action of the hind legs was impaired and the tail was arched strongly in a lateral position. Sound or sudden movements taking place in close proximity to the animals caused convulsions, although fairly periodic spasms were observed without extra stimulation. Prior to death, violent symptoms of tetanic convulsions and opisthotonic contractions threw the animals into strong sigmoid curves with the head inclined upward at a sharp angle. This posture was retained with only slight relaxation after death. In a preliminary test of temperature effects, 9 lizards were divided into three groups, one of which received 100 guinea pig MLD's (minimum lethal doses) of the toxin, another 50 MLD's and the third 5 MLD's. From each of these dosage groups, 1 animal was placed in a heated cabinet at 38 C., 1 in a cage at room temperature (27 C.) and a third in an incubator refrigerator at 10 C. In the group at 38 C. symptoms began to appear in about twenty-four hours, with characteristic convulsive death by the end of two days. With the moderate cooling (27 C.) there was a material prolongation of life, the first symptoms being delayed till the end of three days and death till the seventh or eighth day. With the chilled group (10 C.) no symptoms were noted till the end of the experiment (fourteen days). Tests of larger series of animals and greater standardization of the toxic dose are now in progress. The preliminary tests, however, clearly show that lowering of temperature definitely prolongs life in the desert iguana and give rise to the hope that similar procedures may be successful adjunctive therapies in certain human toxic diseases.

---

[1] Cowles, R. B., and Nelson, N. B.: *Proc Soc. Exper. Biol. & Med.* **64**: 220 (Feb.) 1947.

NATIONAL CONFERENCE ON RURAL HEALTH

Third Annual Meeting, held in the Palmer House,
February 6 and 7, 1948

Dr. F. S. Crockett, Lafayette, Ind., Presiding
Friday, February 6

The conference on Rural Health of the American Medical Association was called to order at 9:45 a. m. by the Chairman, Dr. F. S. Crockett, Committee on Rural Medical Service, American Medical Association.

Chairman Crockett: Our two previous annual conferences dealt with the need for better health facilities and health services in rural areas and sought to evolve technics that would secure this improvement in rural living. The common interest of doctors and farmers resulted in expanding our American Medical Association Committee on Rural Medical Service to include advisory members from the four larger farm organizations. This addition of advisory members from the farm groups has made possible a bilateral approach to all our common health problems free from any dominant unilateral self interest.

The program that we are giving today and tomorrow is the result of full and free conference which was held last October with our advisory members. Any one present is privileged to voice his opinion, no matter how controversial. If there are things which seem to you important and of which the profession apparently is not aware, they should be brought out in these conferences.

The program this year takes up the health status of the rural child. Good health cannot be imposed on any individual or community by some higher authority; it can be achieved if those concerned want it more than anything else. Our people must be shown that children should be kept free from many of the diseases of childhood with their resultant disability and mortality. By providing adequate education in health matters, it is not the intent to make doctors of all the people, but if persons can be educated in health matters to the point where they will seek health while still curable and take under guidance the necessary measures to prevent the spread of disease, then will we have the fulfilment of many of our objectives. We look to this conference conducted in cooperation with the National Cooperative Milk Producers Federation, the Farmers Educational Cooperative Union, the National Grange and the American Farm Bureau Federation to mark another milestone in our progress toward better rural health.

Address of Welcome

Dr. George F. Lull, Secretary and General Manager, American Medical Association, Chicago: We feel that the problems about to be discussed are of vital interest to doctors as well as to members of these important agricultural groups. We have, following this meeting, a Congress on Medical Education. Some of the work being done by the medical schools fits in with the work recommended by many of your groups, that is, in certain states scholarships are being set up for men who after the completion of the study of medicine will go to rural areas and practice where there is a need for a general practitioner. The distribution of these doctors to rural areas is not a simple matter. However, this step by the institutions of learning is in the right direction and may help solve this problem.

It is also of a great deal of importance to us to bring into this conference the health of rural children. To improve the health of this group, the physicians must have the aid of farm families. The Hill-Burton Bill is a step in the right direction for improved health. It means that more hospitals will be available for persons in rural areas. These hospitals will go, hand in hand with better medical care, because the better physicians will be attracted to areas where adequate hospitalization is available. A great deal of benefit is going to result to the rural areas, but it isn't going to be accomplished overnight. It is important that these hospitals be properly located. The site should be selected with care and should depend on need rather than on political expediency. Most places have gone into this with a great deal of care and the results of the surveys show that the communities and the agencies involved are vitally interested. We hope that you enjoy your stay with us and that we can all go away feeling that we have accomplished something.

Health Problems of the Rural Child

Dr. Lee Forrest Hill, Past President, American Academy of Pediatrics, Des Moines, Iowa: In my assignment to point out the health handicaps imposed on rural children by the maldistribution of medical services and facilities between rural and urban areas, I am confronted by the difficulty that no standard has been set up defining the kind and amount of medical care that a child should receive, whether the child lives in the city or in the country. Were such a standard available, it would be simple to list categorically the deficiencies of the health services available to the rural child. It seems reasonable in the absence of an established standard to use the urban child under pediatric care for comparison with the rural child in order to bring out the health problems of the latter.

The pediatricians of the nation are located almost exclusively in the larger cities. Less than one fourth of the child population receives its medical care from pediatricians. Over three fourths of the children in the United States are dependent on general practitioners for supervision of their health. General practitioners, receive, even in recent years, only about two months of training in pediatrics during their single year of internship. I agree with those who feel that the general practitioners are doing an excellent job and that what is needed is more of them and more of them in rural communities. But if the health problems of the rural child are to be met adequately it is essential that the general practitioner of the future receive more pediatric training than has been provided for him in his medical school education and in his internship in the past. The current movement toward two year internships for the general practitioner, four to six months of which would be spent in pediatrics, would appear to be a long step in the right direction.

Among the health problems of the rural child, first is the relative unavailability of the preventive services. Nearly one half of the average pediatrician's practice is devoted to health supervision of well infants and children. Customarily, infants are brought to his office monthly for examinations during the first year, every three months during the second year, every six months from the second to the fifth year and at yearly intervals throughout the remainder of the growing period. The purpose of such regular examinations is to appraise the adequacy of growth and development as shown by physical measurements and by mental and motor achievement. Thus disease may be detected in its incipiency and corrective measures instituted before irreparable organic damage has resulted.

A careful physical examination is performed at each visit, including acuity of vision and hearing tests at or near the beginning of the school years. Simple laboratory tests of the urine and blood are done, and tuberculin tests are made at intervals of three years. Immunization procedures are carried out at the proper age in infancy, and appropriate booster injections are given in later childhood. The adequacy of the diet, including vitamin and mineral supplements to meet nutritional needs as these vary with the growth periods, is reviewed at each visit. A final and most important phase of the health examination is the parent-physician conference in which parents are instructed in what to expect in the way of behavior at the various age periods and advised as to how each major situation should be met. The prevention of emotional maladjustment in the home, at school and among playmates is an important function of the regular health examination.

Obviously this sort of medical care is difficult for the rural child to obtain. The busy rural general practitioner just has not had the time, even if he has had the training, to provide the rural child wi[illegible] important phases included in the periodic health ex[illegible] In t[illegible] cities [illegible] well [illegible]hild conferences are available to the children of less well-to-do families. In many states health departments sponsor child health conferences in rural areas, but the bulk of rural children are still without the advantage of this type of health supervision. This is equally true of the school health examination. Until general practitioners are available to provide preventive health services for rural children, steps should be taken to increase the number of well child conferences and to establish more widely the school health examinations.

A second major health problem faced by the rural child is the relative unavailability of the specialist's consultation services. From the more remote areas the job of getting an ailing child to a specialist in a medical center is not easy, the result being that the visit may be delayed or not even attempted. Methods have been suggested, some of which are already in operation, for bringing to the rural areas more adequate consultation service.

A third health problem in which the rural child is handicapped compared to his urban contemporary is the matter of the facilities for the treatment of the more serious illnesses. Scientific medicine has made great advances in recent years. Today more than ever before the laboratory is essential in the diagnosis of disease and in the management of treatment. But for rural children no such nearby facilities are available.

The Hill-Burton Hospital Construction Act is aimed at remedying this situation. But the rural general practitioner must be supplied with more than hospital beds if his child patients are to have the full benefit of what modern medicine has to offer. He must be given all the necessary adjuncts with which to do his work. Pediatric hospitals can be of great help by rotating members of their resident staff through these remote hospitals. Thus, plus weekly or semimonthly visits to the outlying hospitals by a senior member of the staff for the purpose of making rounds or holding a clinic for the neighboring general practitioners, would do much to provide the rural child with the advantages enjoyed by the urban child.

A fourth health problem, the premature infant, offers a particular hazard in rural areas. One half of the deaths in the neonatal period occur among prematurely born infants. Many of these lives could be saved. But, special facilities and personnel specially trained in the care of the premature must be provided. The American Academy of Pediatrics, through its Committee on Fetus and Newborn, is engaged in a project looking to the establishment of premature stations at strategically located centers in every state in the country. It is contemplated that ambulances equipped with incubators and oxygen will be made available to transport the premature infant from the place of birth to the premature station.

There are many other health problems which residence in a rural community creates for the child, but perhaps these I have mentioned are sufficiently illustrative to point up the need for instituting measures which will lessen the gap in medical advantages between the rural and urban child. The health problems of the rural child can be met in part at least by the attainment of some or all of the following objectives:

1. An increase in the number of physicians in rural communities.
2. Increased emphasis on pediatric teaching in undergraduate medical education.
3. Lengthening of internship for the general practitioner going into rural practice to two years, six months of which should be devoted to pediatrics especially adapted to the problems of the rural child.
4. Construction of rural hospitals and health centers as proposed under the Hill-Burton Bill with provision being made for adequate laboratory and other technical personnel.
5. Rotation of pediatric residents from approved hospitals in pediatric centers through these rural hospitals for the benefit of both the residents and local doctors.
6. Frequent visits by consultants from the staff of the pediatric hospitals to the rural hospitals for ward rounds and teaching clinics.
7. Increased provision for postgraduate education in pediatrics of rural general practitioners both at the pediatric center and in the local communiteis.
8. Development of more adequate school health services by physicians trained for this purpose.
9. Coverage of all counties by public health services, including the public health nurse.
10. Establishment of premature stations wherever needed in each state.

I have read the booklet prepared by the Committee on Rural Medical Service of the American Medical Association. It is gratifying to learn of the seriousness of purpose with which the problem of extending better medical care into rural communities is being attacked. The reports of the chairmen of state medical committees and those of representatives of the medical schools clearly indicate that remarkable progress is being made. The American Academy of Pediatrics will be happy to contribute its services in every way possible toward improving the health of rural children.

Mrs. Charles W. Sewell, Administrative Director, the Associated Women of the American Farm Bureau Federation, Chicago: According to a statement made last September, 53 per cent of the children who were then entering the nation's schools were from rural homes. David S. Jordan remarked that the education of a child, and I would like to add, his health, begins a hundred years before his birth. With fewer hospitals and clinics to provide prenatal care available, the rural child often has handicaps dating from birth that penalize him for an entire lifetime. About seven eighths of the children born in cities, but less than half of the rural children, see the daylight first in hospitals. Authorities tell us that more than 40 per cent of all farms are still without electric power. Hence, in many sections children lack proper light for studying. Too many farm homes are still without running water, sewage disposal and other sanitary safeguards. I believe that the day is not too far distant when we will require the nutrient content of the soil on which our food is grown to be declared to allow us to know we are buying food and not filler. We used to say "children are safer in the country," yet the National Safety Council tells us that farm accidents are among the highest that they have recorded.

The migrant child of rural America is another new development. Health needs are not closely supervised, and many disastrous epidemics are directly traceable to these children who come and go as the seasons change and the families move on to work in other harvests. I believe we can make the needed changes to keep the rural child happy and healthy if we work together—the medical profession, the farm people, the public health officials and the citizenry. The fine program in health carried on by our national 4H clubs demonstrates what can be done. My own organization has this year raised $12,500 to be used in the establishment of scholarships or fellowships in research on poliomyelitis. We need better distribution of doctors, dentists, nurses and hospitals. We need better public health facilities and more programs in school health.

Many state organizations have taken the lead in securing legislation that will protect the health of the rural child. Many have promoted the prenatal plans for better care. We need your help to establish hot school lunches for all our children. Agriculture should not be expected to carry the load alone. As a representative of the American Farm Bureau Federation, I wish to express our appreciation to this committee for helping the American Medical Association and perhaps all of America to rediscover rural America and its children.

Study of Child Health Services

Dr. Crockett: We next have on the program three papers on the study of child health services.

Dr. John Hubbard, Director of Child Health Studies, American Academy of Pediatrics, Washington, D. C.: (Read his paper, which will be published in full in The Journal.)

Dr. Katherine Bain, Director, Division of Research in Child Development, U. S. Children's Bureau, Washington, D. C.: Economists have pointed out that children in the city have and children in the country have not, but the separation of urban from the rural population is not nearly as clearcut as this in regard to medical care. People do and should cross county lines or even state lines in seeking adequate health services. How much migration actually takes place for treatment and diagnostic service we do not know, but the big urban center certainly supplies not only the population of that county but the surrounding area. Persons in a so-called rural county adjacent to a metropolitan county have more chance of getting adequate medical care than those in an outlying county. This county grouping which Dr. Hubbard has described was devised to take into account the factor of accessibility of care, but with this factor of accessibility weighed, you have seen the extreme maldistribution of personnel and hospitals that exists. Now what does this maldistribution mean in terms of actual care received by children?

Previous studies such as the National Survey of 1935 used the device of a personal interview with a sample of the population. The academy's study went at the problem from the other end. The study gathered data from the persons rendering service, from the physician, hospital, clinic and so on. The study has collected these types of data for each county in the United States, all the visits made by the physician to the child's home or the office visits of children on an average day, all the children in hospitals in an average day, all the children visiting clinics on an average day—these taken together are an index which we have called the total volume of medical care. This is fairly complete coverage, and because coverage is complete, we are justified in making certain rates against the child population. We find that a thousand children in Illinois or in Maryland and the District of Columbia have, on an average day, twice as much medical care as a thousand children in Alabama. Are the children of Alabama less in need of medical care? I would doubt it. One is forced to accept the fact that the children of Alabama get not more than one half as much care as they actually need.

With regard now to total volume of medical care using the county group classification, on the basis of eight states selected because they are fairly representative of the United States as a whole, we find in the metropolitan and adjacent counties the rate of total volume of medical child care on one day is 17 of 1,000 and the rate for the isolated counties is 12.5. Again it is shown that the children in or near cities have more medical care than the children in the outlying district.

In addition to more in quantity there is also more in quality. The metropolitan and adjacent counties have more hospital, clinic and specialist care. Children in and near cities have twice as much hospital care, five times as much clinic care and four times as many visits to the pediatrician.

Dr. Hubbard has shown the maldistribution of doctors and hospitals. I have shown what maldistribution is in terms of the amount of medical care. What does this mean in terms of health for children? What is the end result? I don't believe that we know the whole answer. One item of information: Infant mortality for the five years of 1941 to 1945 was 38 for the metropolitan area and 47 for the isolated county. The infant mortality rate has long been considered a delicate index of the health of the community. I think it is fair to assume that one important cause of the more favorable infant mortality of the metropolitan and adjacent counties was the quantity and quality of available medical care.

Dr. Henry G. Poncher (Chairman, Illinois Child Health Studies, American Academy of Pediatrics): The need for improvement in the medical care health supervision for children has been established by the survey. There is a dramatic contrast between the adequacy of all health aspects and facilities for children in urban and isolated rural areas. This includes all the services, physicians, dentists, hospital facilities and community health services. It is agreed that the mental health of adults depends on the care they received as children. Health depends more on well trained doctors than on improved medical facilities and more on greater availability of community health service than on hospital facilities when children are sick. While improved physical facilities are important, the judgment and the skill of the individual physician in matters pertaining to child health is paramount. Such skill is the result of training and experience. It has been shown that the general practitioner provides 75 per cent of the medical care for children, yet nearly one half of the physicians in the survey report that they have had no hospital training in pediatrics. I think the general practitioner has done an excellent job, considering the task with which he is faced. The point I would like to make is that to provide one of the important improvements in medical care for rural children we have to give some definite consideration to medical education. As a result, the American Academy of Pediatrics has seen fit to appoint a Committee on Child Health Improvement representing various parts of the country. The further step then taken is to appoint a Committee on Pediatric Education. It is becoming increasingly apparent that the planning of undergraduate and graduate courses must provide for the general practitioner in the field of pediatrics in order to fulfil the health needs of the community.

I would like to point out just how the survey was started in Illinois and the mechanization by which some help can be obtained for the definite situation. This study was channeled through the Illinois State Medical Society because there is an organization within the state composed of ten councilor districts. The whole study was based on the fact that when the results were obtained they would be returned to the local areas for planning in public health, so that while we not only have details with regard to child care, we have an organization to follow-up with that data.

In the southern part of the state there is a definite area almost exclusively isolated. There is no consultation service and no licensed pediatrician in that area, and as a result the Illinois State Medical Society has voted to establish a diagnostic center in that area. That is one of the palpable means by which rural help can be obtained.

A pamphlet put out by the Illinois State Medical Society is entitled "Doctors and Horses." It is an excellent, concise description of how improvements may be brought about.

Education is an exceedingly important factor in this problem. The College of Medicine of the University of Illinois has seen fit to admit 50 per cent of its students from urban areas; 50 per cent of the places are saved for those outside of Cook County. Furthermore, the Illinois State Medical Society has gotten together with the Illinois Agricultural Association and raised $100,000 to send young men from rural areas to medical schools with the idea that those men are more likely to go back to rural areas. Another thing that has been done by the Department of Pediatrics is to provide that our men must spend at least six months of their pediatric training in a semirural area.

I would like to stress two points: first, we must improve our pediatric education and make pediatric education available to more persons who will go back to rural areas; second, the communities themselves must take the initiative in asking for improved medical facilities.

Rural Youth and World War II

Dr. Maurice H. Friedman: The people of this country have been frightened by a lot of irresponsible estimates regarding the draft figures, some of them emanating from an agency of our federal government. It is unfortunate that such frank misstatements of fact have been broadcast. It has been claimed time and time again that the percentage of rejectees from rural areas was higher than that of rejectees from our cities and metropolitan areas. I should like to emphasize the fact that the draft rejectee figures have little to do with measuring the health of any community.

I have had frequent conferences with members of the selective service administration in Washington and I should like to project for you the actual figures which they gave me and which they checked item by item with every decimal point before I came out here to talk with you.

For the United States as a whole, the number of men (white only), was definitely higher than from the cities. From the country 57.3 per hundred were accepted, and from the city, 54.7. For every section of the country, the number of men accepted from the rural communities was higher than that from the cities. The acceptance rates were lower for the purely farm population as opposed to other populations than for the remainder of the rural population. Nevertheless, the acceptance rates for farm only are higher for the United States as a whole for white men than they are for the cities. Statements that the rejection rates in rural areas were higher, reflecting poor health conditions, will have to be branded as false, if we can accept the original data of the Selective Service System. That condition does not pertain to the same extent to the Negro. The figures for the Negro show definitely lower acceptance rates for Negro registrants in all categories. Note that the farm acceptance rate is slightly lower than the urban. The Negro farm rates are even lower than the Negro rural rate as a whole. In some sections of the country, strangely enough in the South, the rural acceptance rate for Negroes was above 59, higher than the urbanite rate, which is 56.5. The Negro rejections were largely determined by venereal disease, educational deficiencies and mental disease. Those three factors alone accounted for 60 per cent of all Negro rejections.

I made an adequate statistical allowance for errors. There were twenty-four categories of defects which could be compared in each of these states, which makes seventy-two possible comparisons. Of these seventy-two categories, in twenty-nine there was no difference whatsoever between the rural and urban populations; in twenty-three categories the rural population had definitely fewer defects than the cities, and in twenty categories the city rates were definitely lower than the country: Altogether there was no difference between the urban and rural defect rates. For most of these categories, the differences were not consistent. There were three classes of deficiencies which were consistently different in the rural and urban population. The category of eyes, ears and abdominal organs. Those three categories were lower for the rural population in all three states than for the city population. In those three categories (eyes, ears and abdominal organs) the farm and rural population as a whole had lower defect rates than the city. The differences between these defect rates were so great as to exclude any sampling error. On the other hand, there were three categories in which the rural rates were higher. Mouth and gums, throat, and educational deficiency were the categories for which the rate was higher in the rural areas of all three states.

With the cooperation of the officers of the selective service, I obtained permission to see the raw data county by county for the entire United States. I did not have sufficient time or energy to prepare the data for the entire country, but I took three representative states in this part of the country, Indiana, Iowa and Illinois. Every county had its own draft board. My problem was to select purely rural counties from purely or overwhelming urban counties. I got the census figures and I segregated those counties in which there was not a single community over 2,500 in population from those in which the populations were almost entirely urban excepting Cook County, Chicago. By counting up every defect listed in these counties in these three states, I prepared a tabulation of defect rates for these three representative states for the urban and rural populations. I took twenty-one rural counties in Illinois with the aggregate population of 422,000 and contrasted the total defect rates with those of the city of Chicago and four other urban counties. I was able to get the figures for seventeen purely rural counties in Indiana with an approximate population of 211,000 persons and contrast total defect rates with the defect rate as found in Lake County, which is almost entirely urban, and three other urban counties in Indiana. I was able to segregate thirty purely rural counties of Iowa with an aggregate population of 452,000 and contrast the figures in these counties with those for Polk County and the six other urban counties.

Tabulation of the total number of defects or the defects in one particular category is in itself no measure of the health of that community. The selective service system was not asked to evaluate the health of this country. They were asked to get combat soldiers and sailors for our armed forces, and they did that job and did it magnificently. They were not concerned with the number of other indexes of public health. What do those defects mean? Of all the defects listed by selective service, over half are structural abnormalities and have no relation to disease whatsoever. The selective service system has always been careful to point out this fact. They have said time and again that the emphasis on these defect rates has been much too great and has engendered many conclusions that are unjustifiable in regard to national health. They have said, for example, something like this; the fact that the terminal phalanx of the middle finger was missing or that a man was less than 60 inches in height were cause for rejection but in no way reflected on the health of that individual. Of these structural abnormalities, many are minor, congenital defects; a number of others are the result of injury which has been repaired, and a great many of these defects are not the result of lack of medical care but the direct result of medical care. When a limb is crushed by farm machinery and a surgeon amputates that limb, you have got another defect in the selective service system. A large segment of draft defect figures show perforated eardrums which are the result of medical care and not the lack of it.

Here is something more astonishing. Some of these defects are a measure of our good health and not the reverse. The fact that a diabetic lives long enough to be examined by a draft board is only due to the continued good medical care available in this country. Children with rheumatic heart disease carrying themselves into adult life by skilful medical care form another significant group with defects listed by the selective service system.

I should like to ask one uestion: is a corpse healthier than a rejectee with diabetes?

DISCUSSION

Dr. Muenzer, Toledo, Ohio: I would like to ask Dr. Friedman why they still list hypertrophied tonsils as disease. Having examined men of two world wars, and having watched a group of athletes for twenty-five years, I have failed to find that the size of the tonsils had influence on the men. I don't think any one should hold hypertrophied tonsils as a diseased condition, as we understand the term disease.

Dr. Mundy: The proponents of socialized medicine were guilty of a great deal of ignorance or we could question their intelligent use of facts and figures which they have quoted from the draft examinations when they tried to use these figures in an attempt to put socialized medicine over in this country. They ought to have enough humility to admit that they were ignorant of those things or that they tried to slip something over.

Dr. Friedman: In the selective service statistics there are several broad categories of defects, one being "throat." A large number of reported defects were hypertrophied tonsils, and I agree that it is not necessarily a disease. Various draft board examiners will record tonsils as being large or small, depending on how they feel about it. That is not an objective measurement. There are also exceedingly different policies in each area. Every defect listed was higher in Iowa than in Indiana or Illinois. One cannot compare the rural population of Iowa or the city population of Illinois, not because they are fundamentally different but because they are in a different army area. I was startled on examination of the differences in policy from one area to another. The number of large tonsils is attendant not on the tonsils but on the draft policy in that area. In the rural areas of Iowa there are more physicians than in the rural areas of Indiana and Illinois, yet the number of defects recorded was higher in Iowa, both city and country, than in Indiana or Illinois.

Dr. Boies (Minnesota): If nobody wants to ask questions, it would be nice to extend the courtesy of the floor to Dr. Friedman until the time expires.

Dr. Friedman: I think it would be very wholesome if the responsible agencies in each community would get together and try to educate themselves as to how to gage the health of their community. It is not merely a question of doctors or hospitals. There are a number of other factors regarding health. Dr. Roscoe Hyde and his co-worker in Boston used the selective service statistics from that district to isolate those factors which were responsible for defects. He went back and graded communities from which these men came. The community is graded as to quality on the basis not of medical care but of per capita wealth, educational facilities, welfare activity, public works and all environmental factors which go to make a good community. Other factors that he took into consideration were housing conditions and density of population. Average income in a separate factor. We found, for example, as has been found time and time before, that tuberculosis depended more on the density of the population than on the economic status or any other separate index and that certain kinds of mental diseases were related to some factors and other kinds of mental disease to other factors. For example, mental deficiency did not occur in the Irish or the Jews. Some persons might wish that the members of the medical profession could convert everybody into Irishmen or Jews. Chronic alcoholism did not occur in the Chinese; it was related more to population density than to anything else. Psychoneurosis is related to other factors. It is important to remember that one cannot discount the importance of church, life, family life and other wholesome environmental factors in regard to mental disease defects listed under the nervous system. For ten years the Council on Churches of Christ in America has sponsored symposiums between physicians and clergymen to foster cooperation on this very problem. The communities as a whole would do well to recognize that.

I cite a few figures to prove that the number of doctors, although important, is not the controlling factor. During the war, when over 30 per cent of our active, young physicians were in the armed services, the civilian population had available to them less than two thirds of their ordinary supply of doctors. Over one third were in the army and navy. Despite this great decrease in available medical services, the maternal mortality in the United States dropped from 3.8 per thousand of live births to 2.1 per thousand live births in 1945. Now some would say that if we can do so well with a third less physicians, let's get rid of all of them! That is the kind of logic that has been used by many persons who have discussed these questions. Infant mortality dropped from 47 per thousand live births in 1940 to 38.3 in 1945, again associated with or contemporary with a decrease of over 30 per cent in volume of medical service available to the civilian population of this country. Caution must be exercised. Merely because two things happened at the same time does not necessarily men that they are closely related. These various facts demonstrate that other factors than the number of doctors are important in health and that in order to estimate the importance of the services of physicians and hospitals one must make proper allowances for all the other factors which are of equal and sometimes greater importance.

Dr. Margaret W. Gerard, Institute for Psychoanalysis; Consultant for the Illinois Children's Home and Aid Society, Chicago: There is more and more talk about so-called psychosomatic medicine. All illness has to do with the lack of adequate behavior of the body, the lack of real integration of the body, which includes the nervous system and all the other organs concerned in health. Many of the diseases have psychologic elements. I would like to discuss some of the factors in the development of a healthy, well integrated individual. The pediatrician has taken over very adequately in many instances the understanding of child psychology. It is the pediatrician, and in some instances the family doctor, who is expected to give information as to how the child is to be brought up. It is in the first few years that the child is mostly influenced. Whether or not he will develop a mental disease, a neurosis or a neurotic reaction which has its somatic element, will be determined in these earl years. Great modifications will vary the ramifications of that disease, but those early years are extremely important.

In most hospitals today, children are cared for affectionately. They take food better. They develop better. We have certainly much less marasmus, perhaps as a result of that affection. We used to see marasmus many, many times in the old days. I have mothers ask, "Am I not going to spoil the baby if I let him do what he wants to do and feed when he wants to feed?" When one goes to the extreme, the later training period is much more difficult, but the child's serenity relative to comfort in living within the first year of life, if he is fed enough, if her is fondled and if he does not have periods of hunger as well as other kinds of pain, makes his psychologic attitude toward living such that he will accept training and accept the demands which life makes on him to grow up

The child with behavior problems always wants to be sick, vomits easily, is very often a child whose incentive to do the right thing is not sufficient because he hasn't had enough reason to think that doing the right thing in the living world is worth the trouble. The old methods of training instituted bowel control within the first month or so and urine control within five or six months if possible. We know now that the child is not physiologically capable of control of bowel movements at that particular age. Physiologic adequacy in relation to the rectal functions and renal functions do not come into operation until the fifth or sixth month and the urinal capacity occurs around the latter part of the first year. A child trained earlier develops difficulties relative to his feeling of capacity, and therefore the child is apt to change his whole attitude toward adaptation. Children develop the feeling of inferiority as the result of this early training. Such children give up learning adequately. They don't achieve as well as they should because they have learned early that they can't do the things they are expected to do. We find children rather despairing about this capacity, and therefore some of the illnesses which come on without any apparent reason and which are fairly resistant to the doctor's treatment have some of their background in the relationship of the child to the parent. Such training should always be tuned to the child's developmental capacity. When he is expected to do something beyond his capacity, he is going to get into difficulties. Not only does this training have to be carried on relative to the capacity of the individual to develop good, healthy habits and social relationships and good physical stamina, but it has to be fairly consistent. We get an inconsistency in our city parents, by whom training is carried out for a day or two; then the parent is busy and doesn't bother. For the next two or three days the child doesn't know what is expected of him. He learns that under some circumstances he doesn't have to do what is expected of him under other circumstances and he never develops adequate habits. He hopes to manipulate his life so that the circumstances which he can protest are present.

Some persons have psychiatric hypertension which is partly relative to their more aggressive reactions. They are persons who have aggressiveness just under the surface. When one follows back into their history one finds a situation in which there was an inconsistency in their training as one element in the difficulty; inconsistencies which made their habits rather fragile, habits which were carried through only under certain circumstances. If the person is not quite sure whether he is going to blow up, his parents have not been consistent in their demands on him. He is under the tension of keeping himself under control, and the result of this tremendous tension is a secondary somatic reaction or secondary sympathetic reaction which involves the blood vessels—a vascular reaction to a psychologic condition. We all are aware of these simple physiologic things. We see them all the time.

The important factor is proper training at the proper time and consistently. A child needs a certain amount of punishment to make him realize that there are certain things he must really do or life will be too difficult. A child can't grow up by love alone. Children develop much better with a certain incentive than they do without any incentive. The main incentive among children is praise.

Another important point is the role that sex education plays in the development of the child. Youngsters get in difficulty because of misinformation which they receive from companions because parents are not willing to talk to them and misinformation which they got from visual scenes which they misinterpreted wrongly. Therefore we find that the child, to be physically and mentally healthy, must have answers to questions about how the body functions relative to any kind of physiologic activity as well as reproduction. He is capable of understanding it without any harm if his questions are answered scientifically. He will get into difficulty without information, because his curiosity leads him astray. Al lkinds of abnormalities develop in youngsters as a result of misinformation. There are books now which are very helpful in letting parents understand how easy it is to answer a child's questions scientifically.

I would like to discuss the factors relative to physical conditions at adolescence, but I haven't time enough. That is the point at which we see many psychosomatic reactions. It is the period when the early bringing up begins to show its bad effects and when the children begin to develop not only mental disease or neurotic diseases, but somatic diseases of psychogenic origin

(To be Continued)

JOINT COMMITTEE FOR THE COORDINATION OF MEDICAL ACTIVITIES

Report of Meeting in Chicago, Dec. 6, 1947

(CONDENSED FROM THE OFFICIAL MINUTES)

The Joint Committee for the Coordination of Medical Activities met Saturday, Dec. 6, 1947, in the Board Room of the American Medical Association Building in Chicago. The Chairman, Dr. Ernest E. Irons, called the meeting to order at 9:45 a. m. Members and liaison members present were:

Dr. Irvin Abell
Dr. Donald G. Anderson
Brig. Gen. George E. Armstrong
Dr. Walter L. Bierring
Dr. G. O. Brown
Mrs. Kity Ives Coleman
Mr. Ralph G. Creer
Mr. Graham L. Davis
Dr. W. Palmer Dearing
Capt. William E. Eaton
Dr. Lester J. Evans
Rev. John P. Flanagan
Dr. J. F. Hammond
Dr. Fred V. Hein
Dr. Elmer L. Henderson
Mr. J. W. Holloway Jr.
Dr Hugo V. Hullerman
Dr. Ernest E. Irons
Dr. George F. Lull
Capt. Frederic L. McDaniel
Dr. J. J .Moore
Dr. H. B. Mulholland
Dr. Walter L. Palmer
Dr. James E. Paullin
Dr. Carl M. Peterson
Dr. Richard J. Plunkett
Col. Paul I. Robinson
Capt. Robert V. Schultz
Dr. R. L. Sensenich
Dr. E. R. Serles
Dr. H. H. Shulders
Mrs .M. Virginia Shuler

NAVY TRAINING PROGRAM FOR MEDICAL AIDES IN THE PACIFIC ISLANDS

Dr. James E. Paullin moved that the Joint Committee heartily endorse and recommend the training program in the Pacific islands, as outlined by the Bureau of Medicine and Surgery, and that a subcommittee consisting of Dr. Edward L. Bortz, President of the American Medical Association, Dr. Lull and Captain Schultz be appointed to suggest a name for the school and its graduates.

CONFERENCE ON COOPERATON OF THE PHYSICIAN IN THE SCHOOL HEALTH AND PHYSICAL EDUCATION PROGRAM

Dr. Fred V. Hein, a member of the staff of the American Medical Association's Bureau of Health Education, presented the following statement:

> It was felt that the American Medical Association was rightfully concerned with school health problems and programs, first becouse there are an estimated 20,000 physicians in the United States who are serving the public schools directly as either full time or part time school physicians. In addition, many thousands of physicians are concerned with school health as it relates to the care of the students and their families. With these facts in mind a Conference on Cooperation of the Physician in the School Health and Physical Education Program was arranged to be participated in by physicians and educators and was held in Highland Park, Ill., Oct. 16-18, 1947. Invitations to attend were sent to state medical societies, state departments of health, state education associations and some national voluntary health agencies. One hundred and twenty persons representing ninety agencies or organizations in thirty states and one territory attended the Conference, and twenty-six consultants drawn from the fields of public health, public education and medical education participated actively. The main purposes of the conference were to implement the health service divisions of the public schools, to provide for an interchange of information among the various personnel and to define the role of the physician in relation to health aspects of physical education and athletic programs. School health policies have been rather well established, and authoritative documents that set forth those policies are available; however, there is a great gap between the practices in the schools and the established policies.
>
> Principal recommendations emanating from the conference which might be of interest to this Joint Committee are: 1. Wherever there is a school, the local community should budget for a school health program and in that budget there should be adequate provision for the salary of a well qualified medical adviser on either a full time or part time basis. 2. The physician's time in the school can be best utilized if he is employed as a medical adviser rather than as a mere medical inspector. 3. Routine medical examinations should be spaced at three year intervals during the school life of the child. 4. The schools should definitely discourage the practice of postponing inoculation to the period of school entrance, because immunization is necessary for protection particularly in infancy and in the preschool period. 5. Cumulative health records should be a part of the child's total school record throughout his school life. 6. Physicians and physical education teachers should arrange joint meetings for discussion of mutual problems.
>
> In general, I think it can be said that the educators were most receptive to the American Medical Association's sponsorship of this program. The reactions have been most excellent. A brochure containing the full recommendations of the conference and the section reports it being published and will be available for wide dissemination to schools, health repartments and medical groups throughout the country.

THE GENERAL PRACTITIONER

Dr. Bierring submitted the following report for the Subcommittee on a Specialty Board for General Practitioners:

> Since the last meeting of this Joint Committee, a number of developments have taken place. One was a request from the secretary of the American Academy of General Practice to a number of the members of the Joint Committee and to various prominent physicians to become members of a Coordinating Committee for General Practice, the composition of which would be similar to that of this Joint Committee. The list of those invited included Gen. Paul R. Hawley, Dr. George F. Lull, Dr. B. R. Kirklin, Dr. William S. McEllroy, and Dr. James B. Waring. Some accepted the invitation; others did not. It appears to be an interesting gesture. The membership of the academy, which was organized barely six months ago, seems to have grown prodigiously, and already an executive director has been employed as a reputedly extremely high salary.
>
> Other organizations in the field of general practice are being promoted, but it does not seem that the specialty board in Indiana—the Indiana Board of General Practice—is progressing very rapidly. I am not certain that there is a need for all these outside organizations. Traditionally and historically, the American Medical Association has been the organization for general practitioners and has within itself the machinery, and the inclination to bring about a definite elevation of the status of the general practitioner.

Dr. Sensenich informed the committee that the president of the American Academy of General Practice had recently stated that the formation of the academy is a response to an insistent demand o nthe part of general practitioners that there be a specific organization that will look after their own particular interests. Dr. Sensenich also said: In conversation with the president of the academy, I called to his attention the fact that practically every organized specialty group had early in their existence taken the position that they were not policy-making bodies; I told him that I hoped the new academy would not have some other conception, and he said there had been no thought of such a position.

Dr. Abell remarked that he had heard that the general practice section of the Los Angeles County Medical Association has established a subsection on surgery! Dr. Paullin asked in what part of the country the movement is most active, and Dr. Lull replied that it is rather general throughout the country.

Dr. Henderson spoke as follows: This movement is pretty general throughout the country. On the surface, at least, it does seem to be a movement in conflict with the American Medical Association. The American Medical Association is the general practitioner's organization; anything that any other organization can do for the general practitioner, the American Medical Association can do and is doing. It seems to me that it would be a mistake for any official of the American Medical Association to become a member of any other type of general practitioner's group as organized today.

According to Dr. Moore, the academy says that it is not in opposition to the American Medical Association because one of its membership requirements is membership in the American Medical Association. Dr. Palmer suggested that perhaps one of the motivations for the organization was an attempt to bring pressure on the hospitals to resist the efforts of the American Medical Association to elevate hospital standards. Dr. Bierring thought that there might be some ground for complaint but said that in his opinion the American Medical Association is doing all it can for the general practitioner. He remarked that one of the first objectives of the academy is to promote and maintain the "general practice of surgery," and he wondered what constitutes the general practice of surgery!

Dr. Anderson stated: The Council on Medical Education and Hospitals is doing nothing that would in any way exclude the general practitioner from the hospitals. In certain institutions the lay boards have interpreted the Council's "Essentials" to mean that only diplomates of the specialty boards should be on the staff; they have been in error, and the Council has so informed the institutions.

TAFT-SMITH-BALL BILL VERSUS WAGNER-MURRAY-DINGELL BILL

Mr. J. W. Holloway Jr., director of the American Medical Association's Bureau of Legal Medicine and Legislation, presented a statement contrasting the Taft-Smith-Ball bill and the Wagner-Murray-Dingell bill.

COMMUNICATION FROM MISS MARY SWITZER

The Chairman asked Dr. Shoulders to read a letter which Miss Mary Switzer, assistant to the Federal Security Administrator, had sent him in reply to his request that she discuss at this meeting matters of current interest, particularly the Bipartisan Committee on Reorganization of Federal Agencies, which Hon. Herbert Hoover is chairman. The letter reads:

As you know, the American Medical Association is one of the sponsoring organization of the National Conference on Family Life to be held in Washington, D. C., at the White House, May 6-7-8, 1948. At a recent meeting of the Board of Trustees, Drs. Wingate M. Johnson and James R. Miller were named the official representatives of the American Medical Association. In addition to these official representatives, I hope that other members will be asked to serve on various committees working up material *for presentation at the conference. Our group may be interested in just* how comprehensive the program o fthe conference will be. The subject matter *has been divided roughly into three large headings: (1) background* —which will be a description of the modern American family, where it lives, what its background is, income distribution, legal status, and the like; (2) the family as part of the social group—which will be concerned with what the psychologists call "the dynamics of family interaction," how they form, mature and function, probably an anthropologic approach in simple terms: this section will deal with the inter-personal relations *in family living and so on, and (3) action areas of family life, of which* health is one. Others include home management, housing, education and social welfare.

In addition, the following five points will be woven into the outline: (1) the role of spiritual values in the development of stable family life; (2) the meaning of democratic family life; (3) trends in ascandant-submissive roles of husband and wife, factors relating to success and failure in marriage: (*a*) economic living and social factors, and (*b*) women's conflicting values; (4) dominant patterns of authority and discipline in the family, and (5) cultural pressures on individual members of the family.

The Chairman regretted that Miss Switzer had omitted a reply with respect to the Reorganization Committee, and Dr. Dearing said that little is known about it as yet, except that a bill has been introduced in Congress to provide additional funds for the committee's work. The Chairman announced that the subject would be placed on the agenda for the next meeting.

HOSPITAL SURVEY AND CONSTRUCTION PROGRAM

Dr. Dearing presented the following information with respect to the Hospital Survey and Construction Program:

The Hospital Survey and Construction Program was a subject of much discussoin at the recent conference of the state and territorial health officers; The response of that group is indeed gratifying and encouraging.

Thirty state plans have been submitted and twenty-three have been approved *by the Surgeon General, involving* an estimated cost of $42,000,000. Actually, fifty projects have been approved for construction totalling $34,730,000, an average of about $700,000 for each facility. There was concern in the beginning as to whether the facilities would be placed in the areas where they were most needed, but the early projects have been satisfactory in that respect. The state and territorial health officers' organization recommended that Congress be asked to provide needed funds and to expand the authorization.

. The final steps in the preparation of a state plan are of considerable interest. Public hearings are held before the state plan is approved after the state has decided on its various hospital areas and how many beds *they are entitled to; these matters are* put before all concerned in open meetings which usually have been well attended and have been quite acicable.

One worry is the continuing increase in costs, which may make project estimates of the present or of six months ago out of date when the time comes to allot a contract. The federal contribution of one third can be increased by a supplementary allotment, but the state or local area will have to meet the costs.

Dr. Dearing showed the Committee a booklet entitled "The Hospital and Your Community," which has just been published by the Division of Hospital Facilities of the Federal Security Agency in an effort to stimulate interest.

Discussion on the Hospital Survey and Construction Program was as follows:

Mr. Davis: The high cost involved is one of the principle difficulties encountered at present. At a meeting of the Rural Health Subcommittee of the Federal Hospital Council about a week ago the program was discussed at some length. Following are some reasons for the high costs: Labor in the building industry is about 38 per cent as efficient as before the war. Prevailing wages in the district must be paid in order to get federal assistance; the Department of Labor takes the highest prevailing wage in the state as the standard, and that is applied in small areas in the rural parts of the state. The problem of the local community's raising enough money is serious and is delaying construction programs. Because of increased costs, these communities must raise twice as much as they planned to raise. It is a question whether or not the poorest communities, even with *the generous assistance of the federal government*, would be able to raise two thirds or the cost. North Carolina and, I think, Mississippi have *appropriated* state funds. It is possible that we shall not get hospital facilities under this program as at present outlined in those poorest *areas where the need is greatest.*

Dr. Dearing: The State and Territorial Health Officers Association recommended (1) that the federal government be permitted to provide the cost of administration by the state agency becouse state funds in many instances are not adequate and (2) that the law be amended to permit the states which have not enacted enabling legislation by July 1, 1948, but which will pass it later, to come under the benefits of the act.

Dr. Sensenich: If we are going to seek methods of making the program more effective, it is important to know what is blocking it now. It might be of interest to have that information, because local medical societies should properly stimulate interest where the program has bogged down.

Dr. Henderson: It failed in Kentucky for some technical reason but probably will be approved in January or February 1948.

Dr. Bierring: In Wyoming the enabling act was opposed by the state medical society, and in Kentucky it failed or was not considered by the last state legislature.

THE NURSING PROGRAM

The Chairman asked Dr. Lull to inform the Committee regarding the work of the American Medical Association Committee on Nursing Problems.

Mr. Davis then stated: We in the hospital group want to compliment Dr. Thomas P. Murdock, chairman of the Committee on Nursing Problems, on the very fine way in which he conducted the meeting of his committee, *mentioned by Dr. Lull,* which some of us present today had the privilege of attending. Six or eight months ago the American Hospital Association became worried about the way that the medical profession and the *nursing profession* and the hospitals were all contending with each other in the public press. Articles appeared in which hospitals were blamed for exploiting the nurses, etc., and we suggested that there be a conference of five representatives from each group—the nurses, the physicians and the hospitals. The American Medical Association in the meantime had appointed its Committee on Nursing Problems, and that committee at the *meeting in November decided to recommend that the American* Medical Association be represented in the proposed conference. We in the hospital field hope that the conference of fifteen representatives, going along at the same time with this national study, will be in position to bring out a concrete program for nursing education and nursing service in the future that all of us can endorse.

RURAL MEDICAL SERVICE

Dr. Mulholland presented the following report:

The Committee on Rural Medical Service has participated in two regional conferences organized by the Council on Medical Service of the American Medical Association, one of which was held in Atlanta, Ga., and the other in ..ew Orleans. The Committee has received reports of *activities of rural health committees from forty-five states and Hawaii.* It is obvious that the information with respect to rural health is slowly but surely infiltrating the state medical associations. The deans of the medical schools were asked to send to our Committee any information they had with reference to the activities of their schools in regard to rural health. As a result, it has been found that five medical schools provide scholarships for students who will promise to practice in rural areas. Som cof the schools have preceptorships for senior students, who are sent out for practical experience with a rural physician. A good many have or will have *coordinated, correlated internships in rural hospitals*, and it is hoped that this will help the problem of general practice. Some of the *schools are including courses taught by general practitioners.* The program of the National Conference on Rural Health, to be held in Chicago February 6 and 7, is now in print. It has been prepared with the cooperation of the American Academy of Pediatrics. Some two thousand invitations to attend the conference have been sent to farm groups and to congressmen.

Dr. Evans spoke as follows on the matter of scholarships for students who will *promise to* practice in rural areas:

One trouble with the scholarship plan is the difficulty of asking a boy to commit himself before he really knows what medicine is. Certainly that became evident in the experiment of the Commonwealth Fund. Then, there is the problem of the physician going into the smaller communities and, while they had had a good hospital experience of two years or more, nonsurgical primarily, wanting to do surgery. Many of those who benefited from the Commonwealth Fund scholarships served their three years and went back into urban life. Another real difficulty is finding a way to help *the right person to get a medical education. I personally* feel that any help given to enable young physicians to practice in rural areas should *come primarily* in the graduate eriod. It is not easy to ask a student in the undergraduate period to commit himself to a future career. What might be done in the graduate period, I do not know. There have been several suggestions; certainly the attempt being made in Colorado, where they are setting out on a graduate training program for the general physician, is good. It will be interesting to see how the various state plans work; it is obvious that something of that nature ought to be tried, but I hope they will not all follow the same pattern.

THE WORLD MEDICAL ASSOCIATION

Dr. Henderson presented information with respect to the World Medical Association.

GRADUATE EDUCATION FOR MEDICAL OFFICERS

Dr. Irons presented the following report:

Dr. Sensenich and I went to Paris with Dr. Henderson and Dr. Bauer *not only as alternate representatives of the* American Medical Association to the organization meeting of the World Medical Association but also as an *informal mission* ,with Dr. Henderson, to investigate the opportunities for professional experience of medical officers in the American zones of occupation.

A Conference with the Surgeons General of the Army and Navy was held some time ago, and at Atlantic City, N. J., in June there was a meeting with the Secretary of War and the Assistant Secretary of the Navy. One of the problems of the Army is that the United States must maintain troops in Europe for a number of years; this will require medical officers, who will come largely from the younger group. At present, in some regions in the occupied zones there is a good deal of unhappiness among the younger medical officers, and it was felt that if by some means we could help the Surgeon General to improve the educational *opportunities* which these young men will have, the European service might be made attractive to young officers.

This was an informal mission undertaken with the approval of the Secretary of War and the Surgeon General of the Army. We were not an inspection group but merely wanted to find out what the opportunities are and what we could do to help. We received most helpful and cordial cooperation from all medical officers and from line officers as well. General Noyes, chief surgeon, European theater of operations, and all his officers were wonderfully cooperative. General Hayes in the Austrian Command already has a program in operation, and this has been helpful to his younger medical officers. The program was outlined by the three of us, Dr. Sensenich, Dr. Henderson and myself. We sent a memorandum to the Surgeon General and also to the Council on Medical Education and Hospitals. It will require a good deal of administration, care and thought, but we believe that the opportunities for educational advancement in universities such as those of Vienna, Heldelberg and Berlin will be developed so that the younger men, while on duty, can get further medical education of a type for which we ourselves had had to pay out money.

Colonel Robinson read the following statement on the Medical Department plan for supervised professional experience in the United States occupation zone in Germany:

I am sure that you gentlemen are well acquainted with the shortage of professional personnel in the Army Medical Service. This shortage is greatest in respect to the number of men who are qualified to perform the services of experts in the various special fields. In order to overcome this shortage the Surgeon General has been forced to rtain a large number of partially qualified experts in the United States for the purpose of completing their formal training. Thus it has been necessary to staff the hospitals in foreign theaters with young medical officers who are the product of the Army Special Training program. This lamentable situation will continue to exist for eighteen to twenty-four months unless some solution can be devised. It is believed that the situation may be improved somewhat by the provision of opportunity for graduate professional training and experience in this area. With this in mind General Bliss requested Drs. Elmer L. Henderson, R. L. Sensenich and Ernest E. Irons, who were visiting this area in connection with the organization of the World Medical Association, to investigate the possibilities of establishing graduate medical training in our Army hospitals. These gentlemen made a very thorough study and rendered a comprehensve report. I would like to take this opportunity to thank Drs. Irons, Henderson and Sensenich for this valuable service. In addition Drs. Irving Wright and Edmund Horgan spent a month in surveying the medical service of this theater and submitted certain recommendations regarding the possibilities of such a program.

After a thorough study of these reports and consultations with Dr. Byrl Kirklin and Dr. Frode Jensen, who was formerly associated with the Council on Medical Education and Hospitals, the Surgeon General has decided on the following plan:

1. In order to obtain a higher type of experts for this area opportunities will be made available for persons who have completed their formal training requirements to obtain supervised experience in the fields of internal medicine, general surgery, orthopedic surgery, obstetrics and gynecology, pediatrics, psychiatry and radiology at selected hospitals. It is not believed to be possible to fulfil the requirements for approved formal training in each specialty at these hospitals. However, supervision may be provided by means of visiting consultants in these specialties, who will volunteer for service in Germany for periods of at least one month and who will thus be able to visit each of the selected hospitals at frequent intervals. It is hoped that we shall be able to maintain at least one consultant in each of these fields in Germany at all times. A number of outstanding men have already volunteered. From the previously mentioned reports it appears that there is adequate clinical material available for the program. The specialties named are those in which the needs for qualified experts are most critical.

A few residents who are completing their training in January and July have signified their interest in these opportunities. Such persons will be commissioned in the Medical Corps Reserve with the rank commensurate with their age, training, experience and previous military service. When commissioner they will be ordered to active duty for periods of one, two or three years and assigned to duty in their specialty at the place of their choice.

When fully developed, the program will be made known to the Council on Medical Education and Hospitals of the American Medical Association and to the Specialty Boards concerned. Full data on each hospital together with the amount of supervisio nin each case will be provided. Every effort will be made to have these hospitals registered with the American Medical Association. It is hoped that this arrangement will meet with the full approval of these agencies, so that those who take advantage of these opportunities will unquestionably receive credit for the time they spend in Germany toward the limited practice requirements for admission to their examinations.

Providd this plan is successful and we are able to pursuade these men to remain at their hospitals for sufficient length of time, we shall then consider the development of a formal training program. Since most of the Specialty Boards require five days of teaching service per week by Diplomates of their respective boards, it is obviously impossible to establish formal training in Germany at the present time. The large majority of Army Board Diplomates must be utilized within the program being conducted in the United States in order to maintain this program at the highest possible educational level. I sincerely request the cooperation of everyone present in support of this program, so that we may render an adequate medical service to our Armed Forces and their dependents in the European theater of operations.

Dr. Sensenich said that an attempt had been made to build up a similar program for the Navy, but that the Navy's problem is much different; he believed that an interest might be built up in medical careers in the Army and Navy so that service will be more attractive.

OUTBREAKS AMONG THE NEWBORN IN HOSPITALS

Mr. Davis, who had requested that the subject of outbreaks of diarrhea among the newborn in hospitals be placed on the agenda, offered the following statement:

This is a problem that is giving hospitals great concern; statements have appeared in the newspapers to the effect that thousands of babies are dying in hospitals from diarrhea; a rather rough article was recently printed in *Look Magazine.* Some of the criticism possible is justified. In Michigan five or six years ago it was thought that we were on the trail of the bug that causes diarrhea, but the cause of infant diarrhea has never been found. An outbreak at St. Lawrence Hospital in Lansing caused the state health department to interest itself, and I think that it has been pretty well established from that deparmen's investigation that the infection was right there in the hospital itself. I suggested that perhaps what was discovered might be useful and that the national health organizations might bring out joint statements as to what has been discovered about the prevention and control of the disease. The report on the Lansing outbreak is being written up in a series of articles to appear in the journal of the American Hospital Association. A joint committee of the American Hospital Association and the American Public Health Association is studying the matter, but I think we need greater cooperation from the medical profession and the public health authorities. I am telling you about it now in the hope that before very long this Joint Committee might make recommendations whereby better support could be obtained from the medical profession.

WASHINGTON LETTER

Senator Langer Would Compare Nation's Expenditures on Animals and Human Beings

Sen. William Langer, Republican of North Dakota, has proposed a comparative study be made of the amount of money the federal government spends on the health of hogs, cattle and other livestock and the total spent on human beings.

Veterans Administration Staff Cuts Won't Affect Medical Divisions

Veterans Administrator Carl Gray, in announcing that some 8,500 of the agency's 200,000 personnel would be released before July 1, stated that no reductions would be made in the medical divisions. He explained that the staff must be cut to stay within the $6,100,000,000 budget recommended for the fiscal year of 1949 by President Truman. Mr. Gray informed his assistants by letter that the reduction is planned "on the assumption that the Congress will not appropriate in excess of budget recommendations."

Medical Records of Veterans to Be Used in Study of Rare Diseases

Dr. Paul B. Magnuson, medical director, Veterans Administration, announced that medical records of more than 100,000 veterans will be used in research studies on the causes and cures of rare diseases. The project will be directed by Dr. Edward Harvey Cushing, research director of the agency, and will go beyond hospitalization to determine cause of relapses and other after-effects. All medical records will be guarded. Under way now is a program of research on heart disease at Mount Alto Hospital, and Dr. Winfred Overholser, superintendent, St. Elizabeths Hospital, is directing a study on psychoneuroses at George Washington University Medical School. There are thirty-five general research laboratories in operation now in class A medical schools, and the agency plans to have such laboratories in all fifty-four veterans' hospitals, Dr. Magnuson stated. Dr. Harvey J. Tompkins, who has been with the agency since 1935, has been appointed head of its neuropsychiatric service.

HEALTH APPRAISAL OF SCHOOL CHILDREN

A pamphlet outlining standards for determining the health status of school children is now being distributed by the Bureau of Health Education of the American Medical Association.

The brochure is entitled "Health Appraisal of School Children" and is a report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association. Recommendations as to how the teacher and the nurse may aid the physician with nonmedical portions of the examination are made. Suggestions regarding periodic medical examinations, special examinations and health inspections are also given. The material was edited by Dean F. Smiley, M.D., and Fred V. Hein, Ph.D., of the Bureau of Health Education Staff.

A complimentary copy will be sent to physicians, teachers and public health workers on request.

Coming Medical Meetings

Alabama, Medical Association of the State of, Mobile, April 15-17. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

American Association for the Study of Goiter, Toronto, Can., King Edward Hotel, May 6-8. Dr. Thomas C. Davison, 478 Peachtree St.N.E., Atlanta, Ga., Secretary.

American Association of Anatomists, Madison, Wis., April 21-23 Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Industrial Physicians and Surgeons, Boston, March 28-April 4. Dr. Frederick W. Slobe. 28 E. Jackson Blvd., Chicago 4, Secretary.

American Association of Plastic Surgeons, Boston, May 6-8. Dr. W. H. Steffensen, 1810 Wealthy St.S.E., Grand Rapids, Mich., Secretary.

American Broncho-Esophagological Association, Atlantic City, Chalfonte-Haddon Hall, April 7-8. Dr. Paul H. Holinger, 700 N. Michigan Ave., Chicago 11, Secretary.

American College of Physician, San Francisco Civic Auditorium, April 19-23, Mr. E. R. Loveland, 4200. Pine St., Philadelphia 4, Secretary.

American Dermatological Association, Coronado, Calif., April 26-29. Dr. Harry R Foerster, 208 E. Wisconsin Ave., Milwaukee, Secretary.

American Federation for Clinical Research, Atlantic City May 4. Dr. John S. LaDue, 139 E. 36th St., New York 16, Secretary.

American Gastro-Enterological Association, Atlantic City, Claridge Hotel, April 30-May 1. Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco, Secretary.

American Laryngological Association, Hot Springs, Va., April 14-15. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia 2, Secretary.

American Laryngological Rhinological and Otological Society, Atlantic City, April 7-9, Dr. C. Stewart Nash. 277 Alexander St., Rochester, N. Y., Secretary

American Orthopsychiatric Association, New York, Hotel Commodore, April 12-14, Nina Ridenour, Ph.D., 1790 Broadway, Rm. 916, New York 19, Secretary.

American Otological Society, Hot Springs, Va., April 12-13. Dr. Gordon D. Hoople, 7qe E. Genesee St., Syracuse 2 N. Y., Secretary.

American Physiological Society, Atlantic City, March Atlantic City, March 15-19. Dr. Maurice Visscher, University of Minnesota, Minneapolis 14, Secretary.

American Society for Clinical Investigation, Atlantic City, Haddon Hall May 3. Dr. Eugene A. Stead Jr., Duke Hospital, Durham, N C., Secretary.

American Society for Experimental Pathology, Atlantic City, March 15. Dr. Frieda S. Robscheit-Robbins, 260 Criddenden Blvd., Rochester 7, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Atlantic City, March 14-19 Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.

Arkansas Medical Society, Little Rock, Robinson Auditorium, April 15-17. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

American Society for Research in Psychosomatic Problems, Atlantic City, May 1-2- Dr. Eugene Ferris, 714 Madison Ave., New York 21, Secretary.

American Society of Biological Chemists, Atlantic City, March 14-19. Dr. Otto A. Bessey, Public Health Research Institute, New York 19, Secretary.

American Student Health Association, Detroit, Hotel Statler, May 7-8. Dr. George T. Blydenburgh, Ohio Wesleyan University, Delaware, Ohio. Secretary.

Association of American Physicians, Atlantic City, May 4-5. Dr. Henry M. Thomas Jr., 1201 N. Calvert St. Baltimore 2, Secretry.

California Medical Association, San Francisco, April 11-14. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8. Secretary.

Connecticut State Medical Society, Fairfield, April 27-29. Dr Creighton Barker, 258 Church Street, New Haven, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, Hotel Adolphus, March 15-18. Dr. Glen D. Carlson, 1133 Medical Arts Bldg., Dallas, Secretary.

Federation of American Societies for Experimental Biology, Atlantic City, March 15-19. Dr. William H. Chambers. Medical Division, Army Chemical Center, Maryland, Secretary.

Florida Medical Association, St. Augustine, Ponce de Leon Hotel, April 11-14. Dr. Robert B. McIver, 111 W. Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta, April 27-30. Dr. Edgar D. Shanks, 478 Peachtree St. N.E. Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, May 6-9. Dr. Harry L. Arnold Jr., 510 S. Beretania St., Honolulu 53, Secretary.

Iowa State Medical Society, Des Moines, April 18-21. Dr. John C. Parsons, 406 Sixth Ave., Des Moines 9, Secretary.

Louisiana State Medical Soceety, Monroe, April 12-14. Dr P. T. Talbot, 1430 Tulane Ave., New Orleans 13, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 27-28. Dr. George H. Yeager, 1211 Cathedral St., Baltimore, Secretary.

Missouri State Medical Association, St. Louis, Hotel Jefferson, March 14-17. Mr. T. R. O'Brien, 634 N. Grand Blvd., St. Louis 3. Exec. Secretary.

Nebraska State Medical Association, Lincoln, Hotel Cornhusker, May 3-6. Dr. R. B. Adams, 416 Federal Securities Bldg., Lincoln 8, Secretary.

New England Dermatological Society, Boston, April 14. Dr. G. Marshall Crawford, 1180 Beacon St., Brookline, Secretary.

New Jersey, Medical Society of Atlantic City, Haddon Hall, April 26-29. Dr. Earl LeRoy Wood, 315 W. State St., Trenton, Secretary.

North Carolina, Medical Society of the State of. Pinehurst, May 3-5. Dr. Roscoe D. McMillan, P.O.Box 232, Red Springs, Secretary.

Northern Tri-State Medical Association, Findlay, Ohio, April 13, Dr. Don F. Cameron, 247 W. Berry St., Ft. Wayne, Ind., Secretary.

Ohio State Medical Association, Cincinnati, Netherland Plaza Hotel, March 30-April 1. Mr. C. S. Nelson, 79 E. State St., Columbus 15, Secretary,

Southeastern Surgical Congress Hollywood, Fla., Hollywood Beach Hotel, April 5-8. Dr. Benjamin T. Beasley, 45 Edgewood Avenue S. E., Atlanta 3, Ga., Secretary

Southwest Allergy Forum, Oklahoma City, April 5-6. Dr. Fannie Lou Leney, 1200 N. Walker St., Oklahoma City, Secretary.

Tennessee State Medical Association, Nashville, April 13-14 Dr. W M. Hardy, 706 Church St. Nashville 3. Secretary.

Texas, State Medical Association of, Houston, Rice Hotel, April 26-29. Dr. Harold M. Williams, 1404 W. El Paso St. Fort Worth, Secretary.

United States-Mexico Border Public Health Association, Laredo, Texas and Nueva Laredo, Mexico, March 20-22. Dr. M. F. Haralson U.S. Court House El Paso, Texas, Secretary.

Western Section American Urological Association Victoria, B. C. Empress Hotel April 19-21. Dr. Adolph A. Kutzmann, 1930. Wilshire Blvd., Los Angeles, Secretary.

Medical Legislation

STATE LEGISLATION

Arizona

Bill Introduced.—S.33-xxxxx proposes to abolish various state examining boards including the board of examiners in the basic sciences, chiropody, chiropractic, dentistry, medical practitioners, naturopathic practitioners, nurses and osteopaths, and to vest the functions and duties of such boards in the secretary of state. The secretary of state, according to the proposal, would be authorized to establish a division of business and professional pursuits to perform the duties previously performed by the abolished boards.

Kentucky

Bills Introduced.—S. 161 proposes to provide means for providing medical scholarships at the University of Kentucky and other eligible instituions.
Kentucky and other eligible institutions. H. 302 proposes the creation of a division of medical and surgical hospitals and related services in the department of health and authorizes such division to be the state agency to accept funds from the federal government in carrying out the provisions of its hospital construction act.

Bills Passed.—S. 162 passed the senate February 25. It proposes to prohibit the handling, sale and distribution of barbiturates except on the written prescription of a practitioner licensed to prescribe and administer barbiturates, with certain stated requirements relating to pharmacists and wholesale dealers in the drug. S. 197 passed the senate February 25. It proposes the creation of a division of medical and surgical hospitals and related services in the department of health and authorizes such division to be the state agency to accept funds from the federal government in carrying out the provisions of its hospital construction act.

Mississippi

Bills Introduced.—H. 533, to amend the hospital construction act, proposes authorization for operating and equipping health centers or health departments in the various municipalities of the state. S. 358 proposes an appropriation to the Mississippi commission on hospital care for the purpose of contributing to the building, erecting and equipping of a teaching hospital in the school of medicine of the University of Mississippi.

Bill Passed.—H. 423 passed the house February 25 It proposes the creation of a four year medical school as a department of the University of Mississippi, which shall be operated as a class A medical school in accordance with the Council on Medical Education and Hospitals of the American Medical Association.

New Jersey

Bill Introduced.—A. 255 proposes the creation of a board of examiners in medical technology, which is defined to be the science, art or technic of performing any laboratory test or examination on or of the blood, blood serum, feces, urine, sputum, exudates, transudates, organ contents or any byproducts thereof, from the human body, living or deceased; when the test or tests shall be used either directly or indirectly as an aid in the care or treatment of diseases, abnormal or injured organs of the human body

New York

Bill Introduced.—A. 2348, to amend the public health law, proposes the creation in the department of public health of a commission to be known as the New York state health commission. Some of the proposed duties which would devolve on this commission are: (1) to formulate and execute a comprehensive, statewide plan designed to protect and improve the health of the people of the state; (2) to erect and maintain health centers providing additional hospital and outpatient facilities where needed; (3) to establish state scholarships on a competitive basis in medical schools, and (4) to provide basic financial assistance, not to exceed $2,000 per annum for a three year period, to qualified physicians who will agree to enter into private practice in rural areas, designated by the commission, lacking a sufficient number of qualified physicians to provide adequate health protection. A. 2368, to amend the education law, proposes to define x-ray diagnosis and to make the practice thereof the practice of medicine within the meaning of the medical practice act. A. 2416, to amend the public health law, proposes to make it the duty of every physician to give notice to the health officer of his respective county, city, town or village of every case of cerebral palsy under his care. S. 2467, to amend the education law, proposes that after July 1, 1949 medical students performing clinical clerkships or similar functions in a legally incorporated hospital shall be exempt from the provisions of the medical practice act.

Virginia

Bills Introduced.—H. 119 and S. 102, to amend the law relating to chiropractors and naturopaths, propose that any such person who received a temporary license to practice until Dec. 31, 1949 may be granted a license to practice by passing the examination required of chiropractors and naturopaths without taking the examination given by the special board of examiners in basic science. H. 439 proposes to require every practicing medical doctor to obtain a revenue license. S. 192 proposes to authorize the use in any criminal prosecution relating to drunken driving of the results of chemical analyses of the defendant's blood, urine, breath or other bodily substance. S. 199 proposes that children born as the result of artificial insemination shall be considered the same as legitimate children for all purposes, if the husband of the mother consented to the operation. S. 221, to amend the law relating to naturopaths, proposes that any person now licensed to practice naturopathy until Dec. 31, 1949 who is now practicing and has been practicing naturopathy in the state for at least five years shall be given a full license to practice without further examination and without any limitation as to time or period.

Bills Passed.—H. 354 passed the house February 27. It proposes to make it unlawful for any physician, dentist or optometrist to practice his profession as a lessee of any commercial or mercantile establishment or to advertise, either in person or through any commercial or mercantile establishment, that he is a duly registered practitioner and is practicing or will practice medicine, dentistry or optometry as a lessee of any such commercial or mercantile establishment. S. 105 passed the senate February 16. To amend the medical practice act, it proposes, among other things, to exempt therefrom interns and residents in legally established and licensed hospitals provided their practice is confined strictly to persons who are bona fide patients within the hospital or who receive treatment and advice in an organized outpatient department of the hospital to which ambulant patients regularly come for professional services rendered under supervision of licensed members of the hospital staff. Such interns and residents, however, must have completed successfully the preliminary academic education required for admission to examinationsggiven by the board in their particular field of practice or hold a valid license issued in a state maintaining standards acceptable for reciprocity with the state of Virginia. No graduate of a substandard medical school may be so employed except under particular cases. S. 106 passed the senate February 16. To amend the medical practice act, it proposes to authorize the state board of medical examiners to suspend or revoke the certificate of a physician who has been the legally responsible head of a hospital the license of which has been revoked because of illegal practice or conduct or practices detrimental to the welfare of a patient therein by the state board of health. S. 107 passed the senate February 16. It proposes to require the annual renewal of certificates to practice medicine, homeopathy, osteopathy, chiropractic, naturopathy or chiropody on or before June 30 of each year.

ARMY

PREVENTIVE MEDICINE SPECIALTY BOARD

An Interim Board of Preventive Medicine under the joint auspices of the Surgeon General of the Army, Navy and Public Health Service has been established. According to the announcement, the board was formed to set up certification requirements for medical officers seeking to qualify as specialists in the field. Final approval and nationwide acceptance of the board's requirements will result in the elevation of preventive medicine to a specialty status. The members of the board are: Ernest L. Stebbins, director, Johns Hopkins University School of Hygiene and Public Health, chairman; Wilton L. Halverson, California State Director of Public Health; Harry S. Mustard, New York City Health Commissioner; Thomas Francis Jr., University of Michigan School of Public Health; Gaylord W. Anderson, director, University of Minnesota School of Public Health; Hugo Muench, assistant dean, Harvard School of Public Health; James Crabtree, deputy surgeon general, U. S. Public Health Service; Col. Tom F. Whayne, chief, Army's Preventive Medicine Division, and Capt. Otto L. Burton, chief, Preventive Medicine Division of the Navy.

COURSE IN PHYSICAL RECONDITIONING

The Surgeon General has announced a new eight weeks' course of instruction in physical reconditioning to be conducted at the Brooke Army Medical Center, Fort Sam Houston, Texas, beginning April 26, 1948. The purpose of this course is to qualify officers to activate, organize and administer programs of physical reconditioning. Officers qualifying for the course will report on April 20 or 21. The course may be attended by regular Army officers, organized reserve or national guard officers, or officers of the Army Medical Department who will have a minimum of one year to serve in the Army after completion of the course. Such officers must be below the grade of lieutenant colonel and must have had at least two years' experience in physical education or have completed a two year college course in which they majored in physical education. Under certain conditions, officers may attend this course prior to entering on a competitive tour for regular Army commissions in the medical service corps. First, they must be qualified for entrance on a competitive tour under provisions of medical circulars 101 or 210, 1947, and second, they should have had experience in the fields of physical reconditioning or corrective physical rehabilitation or be a graduate of an approved course in physical education. Applications must reach the Surgeon General not later than March 20.

ARMY AWARDS AND COMMENDATIONS

Colonel Herrman L. Blumgart

Col. Herrman L. Blumgart of Boston has been awarded the Legion of Merit. The citation reads as follows: "Colonel Blumgart performed exceptionally meritorious service from May 1943 to December 1944. As Medical Consultant, Second Service Command, he used his high professional attainments and administrative ability to promote the highest quality of diagnosis and care of patients in all medical installations within the Command. His constant appraisal of the ability and training of medical officers resulted in the use of these officers to the fullest degree and facilitated the personnel organization in opening new installations. During certain emergencies that arose within the Command, Colonel Blumgart personally supervised the care and treatment of the patients involved and was instrumental in the saving of many lives." A second citation reads as follows: "Colonel Herrman L. Blumgart performed exceptionally meritorious service as Medical Consultant, in the India-Burma and China theaters, from January to October 1945. His keen judgment in the evaluation of the professional capabilities of the medical officers under his jurisdiction, as well as his profound knowledge of the medical problems of both theaters, enabled him to carry out measures that revitalized the medical service. The notable accomplishments achieved in these theaters are due in a large part to the professional ability, loyalty and untiring devotion to duty of Colonel Blumgart." Dr. Blumgart graduated from Harvard Medical School in 1921 and entered military service in February, 1943.

Captain Robert G. Demos

Capt. Robert G. Demos, M. C., formerly of Nashville, Tenn., has been awarded the Army Commendation Ribbon. The citation reads as follows: "Captain Demos, while serving as chief, Obstetrical and Gynecological Section, Surgical Service, Oliver General Hospital, distinguished himself by meritorious performances in prenatal, obstetrical and postnatal care from January to October 1947, a period without a single maternal death. During this period, 3 premature babies weighing less than 3 pounds (1,361 Gm.) at birth were skilfully studied, nursed, fed and raised to normal development. The survival of one 30 ounce (850 Gm.); five and one half months prenatal infant, the smallest ever born in a U. S. Army Hospital to survive, is a single instance of his accurate professional planning. This accomplishment was the direct result of continuous professional study and application of modern methods, constant devotion to duty and above all, an untiring energy to respond immediately to the call of any patient." Dr. Demos graduated from the University of Tennessee Medical School, Memphis, in 1944 and entered military service in April, 1946. He will leave the service in March to engage in practice in Chattanooga, Tenn.

LIBRARY ACQUIRES THE "GREAT HERBAL"

The Army Medical Library, Washington, D. C., has acquired a nineteenth century edition of Li Shihchen's Chinese "Great Herbal" (Pen Ts'ao Kang Mu) in fifty-two volumes. The original of this work was published in 1596 shortly after the death of its compiler, who is said to have labored on it for almost thirty years. Although commonly translated as "The Herbal," it is actually a complete materia medica. Three of its supplementary volumes consist entirely of fine wodocuts illustrating the animals, plants and minerals which form the basic substances of all drugs described in the work itself. This work represents a critical study of 1,578 prescriptions contained in earlier works, to which the author added three hundred and fifty-eight new drugs.

PERSONALS

Col. John M. Caldwell, M. C., chief of neuropsychiatry, Consultants Division, Surgeon General's Office, has been appointed clinical professor of psychiatry and Lieut. Col. Stephen C. Sitter, M. C., assistant chief of neuropsychiatry, Consultants Division, associate professor of psychiatry at Georgetown University, Washington, D. C.

Dr. William S. Middleton, dean, University of Wisconsin Medical School, Madison, has returned to active duty as a colonel of the medical corps for a period of five weeks to act as a medical personnel consultant in the Surgeon General's Office. Colonel Middleton during the war was chief medical consultant to the chief surgeon in the European theater of operations.

Miss Elsa Schneider has been appointed assistant specialist in health and physical education on the staff of the U. S. Office of Education, Federal Security Agency, Washington, D. C. Miss Schneider was formerly with the State Department of Public Instruction in Illinois and was assistant state director of health, physical education and safety for four years.

Dr. Theodore R. Meyer, Sag Harbor, N. Y., has been appointed chief of the medical research and training section of the public health branch, Office of Military Government in Germany. Dr. Meyer was formerly director of the Van Buren County health department in Michigan and of the St. Louis county department in Missouri previous to entering the medical service of the Navy in the recent war.

VETERANS ADMINISTRATION

HOSPITAL AT LITTLE ROCK

The veterans' hospital at North Little Rock, Ark., has been designated as a plastic surgery center, a neurosurgery center and a neuropsychiatric tuberculosis cented. It is located on the bank of Arkansas River several hundred feet above the business district and less than 2 miles from the city. The hospital is so organized that it functions as a small community with itself, closely affiliated with the larger communities in surrounding cities and states. Members of the staff have become thoroughly interwoven into the medical structure of surrounding professional societies, they participate in the affairs of the medical school, and civilian medical authorities participate in professional activities in the hospital. Consultants have been selected among the leading practicing physicians and from the staff of the local medical schools. A residency training program has been developed and at present eight residents and six staff members are actively participating. According to the neuropsychiatry division of the Veterans Administration, this hospital has more than 1,400 chronically psychotic veterans, 70 per cent of whom are of rural origin and the treatment of whom is determined by their environmental background as well as their physical and mental capacities. The hospital reservation comprises about 1,100 acres. The 260 acre farm owned and operated by the hospital produces an average of $3,700 worth of vegetables a year, a large amount of corn and wheat, and hogs which provide fresh pork throughout the year. Also entering into the care of patients are recreational and occupational facilities including shops of various kinds, athletic fields, a nine hole golf course, libraries and recreation halls. There are fifteen ward buildings and seventy-six other structures. The hospital has a bed capacity of 2,400.

RECLAMATION AND REPAIR OF MEDICAL EQUIPMENT

Nearly $2,800,000 of medical equipment consisting of x-ray machines, electrocardiograph equipment, anesthesia apparatus and the like has been repaired by Veterans Administration service and reclamation shops. The total cost of putting this equipment into usable shape has been estimated to be about 7.14 per cent of the value of the equipment. Costs of repair include salaries of repairmen, parts, electric power and lights and all other expenses that could be attributed to the repair service. In addition to repairs shop employees install new medical equipment in Veterans Administration hospitals, homes and regional offices at a saving of time and money. Repair work is carried on at supply depots in Somerville, N. J., Hines, Ill., Montgomery, Ala., and Wilmington, Calif., by a staff of repairmen who have between ten and twenty-five years' experience working with technical medical equipment.

RESEARCH PROJECTS

The Veterans Administration has thirty-five general research laboratories in operation in hospitals affiliated with class A medical schools. The Veterans Administration hopes that such laboratories will be established in all fifty-four veterans' hospitals which operate in conjunction with medical schools and in some of the nonaffiliated hospitals. In addition, six laboratories for radioisotope research and therapy will be established this year and three more next year. A cardiovascular research unit is in operation at the Mount Alto Hospital in Washington, D. C. Twenty hospitals are engaged in a broad investigation of the value of streptomycin therapy for tuberculosis. Two centers for exhaustive study of patients with sarcoidosis will be established. Other projects to get under way this year will be a study of vagotomy in the treatment of peptic ulcer and an evaluation of the usefulness of providing albumin treatment in hepatic diseases. Contracts for research on artificial limbs have been awarded to various universities, private industries and the National Academy of Sciences.

PERSONALS

Dr. Thomas J. Ready has been assigned as chief medical officer and Dr. Frank D. Thomas as chief of the outpatient medical service for the Pass-a-Grille regional area in Florida. Dr. Ready is a graduate of Georgetown University School of Medicine, Washington, D. C., and served in the Army Medical Corps during the recent war. Dr. Thomas is a graduate of Hahnemann Medical College, Philadelphia, and is a veteran of World War I.

Dr. Clarence R. Miller has been assigned as manager of the Veterans Administration Hospital at Jackson, Miss., to succeed Dr. J. Ralston Wells, who will be in charge of the Veterans Hospital at Dallas, Texas. Dr. Miller is a veteran of World War I, formerly served in the U. S. Public Health Service, and for many years has been in the Veterans Administration.

Dr. Robert A. Houston, Sunbury, Pa., has been appointed chief of medical services of the veterans' hospital at Lebanon, Pa., effective February 1.

E. Burns Geiger, formerly of Hagerstown, Md., has been appointed chief of the Pharmacy Division of the Veterans Administration Department of Medicine and Surgery. Mr. Geiger served in the Navy during the war and later became assistant to the chief of the Division of Pharmacy.

Dr. George S. Peters has resigned as chief of the Surgical Service at the veterans' hospital, Montgomery, Ala., and will enter private practice in that city.

Dr. David E. Quinn, formerly manager of the veterans' hospital at Oteen, N. C., has assumed his new duties as medical director of the Northwest Branch of the Veterans Administration with headquarters at Seattle.

Dr. Horace B. Cupp, for a long time on the staff of the Johnson City, Tenn. veterans' hospital, has been named assistant medical director for the Southeastern Branch of the Veterans Administration, which supervises fifteen hospitals and six regional offices in the five Southeastern states. Dr. Cupp served in the Army in the recent war in command of the 63d Station Hospital in Australia and later as commanding officer of a hospital ship.

Dr. James Van D. Nelson, who has been with the Veterans Administration since 1920 and whose recent assignment was at the hospital in Bay Pines, Fla., retired from government service in December.

Dr. Edward E. Johnston has resigned as manager of the Nichols Hospital at Louisville and will enter private practice at Elizabethtown, Ky. Dr. Leverett S. Woodworth has been appointed assistant to the clinical director at the Nichols Hospital. Dr. Woodworth was formerly superintendent of the Massachusetts Memorial Hospital, Boston.

Dr. Howell Brewer, manager of the rehabilitation hospital at Fort Thomas, has been transferred to the veterans' branch office at St. Louis. Dr. Brewer will direct the physical medicine program in the ten hospitals under supervision of the regional branch office.

HOSPITAL NEWS

The opening date for bids on construction of a five hundred and sixty-four bed addition to the neuropsychiatric hospital at **Lebanon, Pa., was extended, at the request of contractors, to February 10.**

The Chief of Army Engineers announced that the February schedule of the closing dates for general construction bids on veterans' hospitals includes the following six general hospitals: Albany, N. Y., 1,000 beds; Little Rock, Ark., 500 beds; Wilkes-Barre, Pa., 475 beds; Wilmington, Del., 300 beds; Altoona, Pa., and Beckley, West Virginia, 200 beds each. The February schedule also includes invitations to contractors to submit bids for general construction contracts on a 1,000 bed hospital at Newark, N. J., and a 200 bed hospital at Erie, Pa.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

COLORADO

Gengenbach Library.—A special library is being established in honor of Dr. Franklin P. Gengenbach, at the University of Colorado Medical Center, Denver, by the Rocky Mountain Pediatric Society. A gift of $250 to start the library was made by the society and other donors interested in pediatrics, and a special fund will be given each year to add new volumes. Dr. Gengenbach, one of the first pediatricians west of the Mississippi, has been practicing in Denver for forty-seven years.

Establish Premature Infant Center.—A Premature Infant Center has just been inaugurated at the University of Colorado Medical Center, Denver. Sponsored by the state department of public health, the state university and the Colorado State Medical Society, the program has been set up to provide facilities for the training of physicians, nurses and other personnel for the prevention and treatment of infant prematurity. The activities of the center are made possible by a grant from the U. S. Children's Bureau. Fifty of every thousand Colorado-born infants die in the first year of life, as compared with the national average of thirty-eight deaths per thousand live births. The medical supervision of the Premature Infant Center is the joint responsibility of the departments of pediatrics and of obstetrics and gynecology at the University of Colorado Medical Center. Premature babies born within a radius of 30 miles of the center may have the services of a special ambulance for transportation. Infants outside this area will be accepted if safe transportation can be arranged. The division of maternal and child health of the state department of health has made available several incubators for loan to facilitate premature infant care in other hospitals.

CONNECTICUT

Personal.—Leonell C. Strong, Ph.D., associate professor of anatomy at Yale, will go to Europe early this spring to lecture on cancer research in Belgian universities. Dr. and Mrs. Strong will be guests of the National Cancer Foundation in Belgium. He will also visit laboratories in Belgium and other nearby countries. Dr. Strong has been asked to lecture in Stockholm, Sweden; Copenhagen, Denmark; Amsterdam, Netherlands, and England. The professor and his wife also expect to attend the eighth International Congress of Genetics in Stockholm during July.

New Veteran's Placement Committee.—A Medical Advisory Committee of five physicians has been named by the Connecticut State Medical Society to aid in the occupational placement of disabled war veterans. Believed to be the first committee of its kind in the country, the group will furnish consultation on employment-medical problems to the veterans' employment division of the United States Employment Service, and to the Connecticut State Employment Service. Members of the committee are Drs. S. Bliss B. Clark, chairman, New Britain; Charles I. Solomon, Meriden; Arthur C. Unsworth, Hartford; Robert W. Nespor, Westport, and Russell V. Fuldner, New Haven.

Institute of Child Psychiatry.—Construction of a five story building to house an Institute of Child Psychiatry has been started on the campus of the Institute of Living in Hartford. The directors of the institute, one of the country's oldest hospitals for the treatment of mental and nervous diseases, have planned the project as the result of fifteen years of psychiatric treatment of adolescent and preadolescent children. Plans include a Parentorium, an original concept to furnish guidance for the parents of emotionally disturbed children. The project, it is estimated, will cost in excess of $150,000, of which more than $100,000 has been subscribed. A large part of this sum has come from members of the institute's own personnel. The new Institute of Child Psychiatry will contain classrooms, a gymnasium, shops, treatment rooms and other facilities. The ultimate capacity of the institute will be 66 children.

ILLINOIS

Fight Against Venereal Disease.—The Cook County Health Department has set up a program to eliminate venereal disease. Over 700 cases of syphilis were reported in suburban Cook County in 1947, the same number as in 1946, and a decrease from 652 to 526 was reported in gonorrhea cases. Five venereal disease clinics are operated by the health department and give about six hundred treatments monthly.

Chicago

Quine Library of Medical Sciences.—The Quine Library of Medical Sciences at the Chicago Professional Colleges of the University of Illinois has a total of 84,910 volumes and is now receiving 923 current journals. The present rate of growth is over 4,000 volumes annually. A special effort has been made to fill in files of foreign periodicals for the war years. With the exception of German journals, nearly complete sets of most of the foreign titles which continued publication during the war have been received. In addition about 300 volumes of French, German and Italian medical works have come in through the Library of Congress cooperative project for the acquisition of wartime publications.

University Orders Magnet for Cyclotron.—The University of Chicago's new giant cyclotron is to have a 4,140,000 pound magnet, to be delivered in July. The magnet will accelerate protons to a speed of some 160,000 miles a second. The institutes of radiobiology and biophysics will use the beam on the cyclotron, among other things, for studies on cancer research. A building to house the cyclotron is under construction.

Grants for Research.—The University of Illinois College of Medicine has received a nutrition fellowship grant of $3,500 from Swift and Company, Chicago, for a year's study of amino acids in the blood in disease. The project will be conducted by the department of surgery under the supervision of Dr. Tilden C. Everson. A grant of $7,920 from the Upjohn Company of Kalamazoo, Mich., will be used to evaluate the use of the pancreatic enzyme lipase A in the treatment of patients who have the symptoms of diarrhea due to pancreatic deficiency. The study will be conducted by the department of medicine under the direction of Dr. Michael H. Streicher. A research grant of $2,700 from Hoffmann-LaRoche, Inc., of Nutley, N. J., will be used for the study of a new sulfone product in the treatment of chronic ulcerative colitis. A grant of $1,500 from Ciba Pharmaceutical Products, Summit, N. J., will be used for the study of skin-sensitizing properties of a nicotinic acid derivitive, under the direction of Dr. Adolph Rostenberg, Jr.

LOUISIANA

Smith-Clark Eye Clinic.—The Smith-Clark Eye Clinic in New Orleans, opened January 2, is said to be the second clinic in the United States to be built and devoted exclusively to treatment of disease of the eye. No beds are provided for inpatients.

Dr. Jones Appointed Editor.—Dr. Philip H. Jones, New Orleans, has been appointed editor of the *New Orleans Medical and Surgical Journal* published by the Louisiana State Medical Society to succeed Dr. John H. Musser, who died Sept. 5, 1947. Dr. Jones obtained his medical degree from Tulane University of Louisiana School of Medicine, New Orleans, in 1920, being the third generation of his family to receive an M.D. from Tulane. As a Rhodes Scholar he obtained his Ph.D degree in pathology in 1924. He returned to New Orleans in 1925. He had served on the faculty at Tulane until he entered private practice in 1929, and in 1945 he was president of the Orleans Parish Medical Society.

MASSACHUSETTS

Hospital Granted Funds for Cancer Research.—The American Cancer Society has granted the Massachusetts General Hospital $100,000 for cancer research in addition to the $50,000 recently given to the hospital for similar research by the Damon Runyon Fund.

Director, of Division of Venereal Diseases.—Dr. Nicholas J. Fiumara, Boston, has received a permanent appointment as director of the division of venereal diseases of the Massachusetts Department of Public Health. Dr. Fiumara, a former navy medical officer, is a graduate of the Boston University School of Medicine, 1939, and the Harvard School of Public Health. He has been temporary director of the division of venereal diseases since April 1947.

Cutter Lecture on Preventive Medicine—Dr. William N. Pickles, medical officer of health, Aysgarth Rural District, Yorkshire, England, will deliver the Cutter Lecture on Preventive Medicine April 12 at 5 p. m. in Amphitheatre D of Harvard Medical School, Boston. His subject will be "Epidemiology in Country Practice." The lectures have been held since 1912. Physicians, students of medicine and public health and other interested persons are cordially invited.

MICHIGAN

Cancer Day Program.—The Genesee County Medical Society announces its third Annual Cancer Day Program, March 31, at Flint, in the Merliss Brown Auditorium at Hurley Hospital beginning at 10 a.m. The following program will be given:

Charles F. Branch, Chicago, Cancer of the Osseous System.
Richard H. Overholt, Brookline, Mass., Cancer of the Lung.
Allen O. Whipple, New York, General Principles of Cancer Management.
Alexander Brunschwig, New York, Extensive Surgical Procedures for Cancer.
Manuel M. Garcia, New Orleans, Role of Radiotherapy in Management of Cancer.

MISSOURI

Past Presidents' Banquet.—The annual banquet honoring past presidents of the St. Louis Medical Society will be held March 15 in the Gold Room of the Jefferson Hotel, St. Louis. Dr. Edward L. Bortz, Philadelphia, President of the American Medical Association, will speak on "Medicine's New Frontiers." Physicians, wives of physicians, and friends are invited.

NEW YORK

Scholarships in Sight Conservation.—Delta Gamma, national social sorority, has a $1,000 annual fund, from which smaller scholarship awards are available for preparation of those intending to become (1) orthoptic technicians, (2) teachers of children with partial vision or (3) specialists for blind preschool children. Any one wishing to specialize in these fields may be eligible for assistance. Application for a scholarship should be made to Mrs. Richard P. Miller, 39 West Jefferson Road, Pittsford, N. Y.

Pediatricians Meeting in Buffalo.—An area meeting of the American Academy of Pediatrics, will be held at the Hotel Statler, Buffalo, April 29 to May 2. The program includes papers on the following subjects: metabolic disturbances, the cardiovascular system, management of the child with chronic disease and the central nervous system. May 2 has been designated Clinical Day, when demonstration of cases will be made at Children's Hospital and Edward J. Meyer Memorial Hospital. The registration fee is $10. Those wishing to register ahead of time may send checks to Dr. Clifford G. Grulee, secretary-treasurer, American Academy of Pediatrics, 636 Church Street, Evanston, Ill.

New York City

Center for Emotionally Disturbed Children.—A center for the treatment of emotionally disturbed children will open at Adelphi College, Garden City, N. Y., this month on a fee schedule. The center has been approved by the Nassau County Medical Society, the Nassau County Board of Health and the medical advisory board of the college. The objectives are treatment of a limited number of emotionally maladjusted children referred by the schools and social agencies; research in the psychiatric treatment of maladjusted children; training of graduate students majoring in psychology, social work and education, and provision of clinical experience for a select group of physicians and graduate nurses interested in psychiatric treatment of children. The medical director will be Dr. John C. Thurrott, a practicing psychiatrist in New York City.

Lecture on Application of Science in Medicine.—David Rittenberg, Ph.D., associate professor of biochemistry at the Columbia University College of Physicians and Surgeons, will deliver the second lecture in the series on the application of fundamental sciences in medicine at the Jewish Sanitarium and Hospital for Chronic Diseases, Brooklyn, Wednesday, March 31, at 8:45 p.m. His subject will be "The Application of Nuclear Chemistry in Medicine."

Fellowships on Pathology of Tumors.—Through the W. T. Grant Foundation, fellowships on the pathology of tumors are available in the laboratories of Memorial Hospital for the Treatment of Cancer and Allied Diseases. Requirements are that a candidate shall hold appointment as assistant professor or instructor in a university department of pathology and that he shall be given a one year leave of absence with a guarantee that he may return to academic status after completion of the fellowship. These fellowships are designed for training of personnel of universities which have received government grants for establishment of correlated work in the teaching of cancerology. Students will have access to about 18,000 specimens per year and will attend conferences and follow-up clinics. Research may be undertaken as a minor portion of the program provided it forms a part of one of the research programs being conducted in the institution. The annual stipend of $5,000 may be supplemented by the university in any individual case. Application should be made to Dr. Fred W. Stewart, Memorial Hospital, 444 East Sixty-Eighth Street, New York 21.

Dr. Boggs Appointed Acting Dean.—The appointment of Dr. Robert Boggs, assistant dean of New York University College of Medicine, as acting dean of the New York Post-Graduate Medical School was announced March 1. Dr. Boggs received his M.D. degree from McGill University Faculty of Medicine, Montreal, Canada, 1933. During the war he was medical officer of the U.S.S. *Wichita* in the Pacific area and was also stationed at Columbia University and at St. Albans Naval Hospital. The Post-Graduate Medical School, incorporated in 1882, has a current annual registration of about one thousand, one hundred physicians and specialists. The Post-Graduate Hospital, located at 303 East 20th Street, has four hundred beds and is currently providing medical services in about one hundred thousand outpatient visits annually.

PENNSYLVANIA

Rheumatic Heart Clinic for Lawrence County.—The State Rheumatic Heart Clinic for Lawrence County, with Dr. John O. Woods, New Castle, medical director, was inaugurated January 28. All patients who have rheumatic fever are to be registered through their personal physicians, after which they may be given appointments for complete examinations with special reference to rheumatic heart disease. Diagnostic and consultation services are offered to patients under 21 years of age who have rheumatic heart disease. Information concerning a patient will be made available to his personal physician, who must request treatment before it will be given.

Philadelphia

Personal.—Alfred Z. Gilman, Ph.D., associate professor of pharmacology, Columbia University College of Physicians and Surgeons, delivered the annual Bernard Comroe Memorial Lecture February 6 at the University of Pennsylvania School of Medicine.

A Plaque for Dachshund Bozo.—The dachshund which has helped medical students at Jefferson Medical College of Philadelphia to learn the use of the bronchscope was recently honored with a plaque from the Dachshund Club of America. For four years Bozo has served medical students who wanted to familiarize themselves with the bronchoscopic method of removing buttons, pins, stones and other items from the throats of babies. Bozo's work is painless. He has a host of friends and can take real satisfaction in knowing that he has helped to save the lives of hundreds of children.

Naval Reserve Officers.—Civilian medical personnel interested in being associated with a U. S. Navy medical reserve division may obtain information through the Office of the Commandant, Fourth Naval District, Philadelphia. Capt. John G. Manley, U.S.N.R., has been assigned executive officer of the Volunteer Reserve Medical Division 4-3, Philadelphia; in addition, the following reserve medical officers on inactive duty have been assigned to this division: Comdrs. James E. Bowman, Martin P. Crane and Charles M. Thompson; Lieut. Comdr. Robert F. Sterner; Lieut. Carroll F. Burgoon, and Lieut. (jg) Karl C. Jonas.

TEXAS

Cancer Detection Clinic.—The Tarrant County Tumor Clinic for the detection and treatment of cancer has been established in Fort Worth with Dr. W. Porter Brown, director, and Dr. Helen Gottschalk, executive director. The clinic is open to the public every Tuesday morning; on any other day a patient may be seen by appointment.

Baylor Hospital Fund Oversubscribed.—The $1,000,000 Truett Memorial Fund, to which Dallas citizens contributed to help pay for a $4,000,000 expansion of Baylor Hospital, has been oversubscribed by about $50,000. The sum will be added to the $1,000,000 raised in 1943, the $1,000,000 contributed by the Baptist General Convention, in which Dr. Truett was a leader, and the $1,000,000 to be borrowed. The money is to be used to build a seven story, eight hundred bed hospital on the present grounds of Baylor Hospital in Dallas.

WISCONSIN

Nicholas Senn Memorial Hospital.—Use of his $300,000 estate for building a general hospital in Milwaukee to be known as the Nicholas Senn Hospital in memory of his father was requested in the will of Dr. Emanuel J. Senn, aged 78, who died Dec. 14, 1947. Dr. Nicholas Senn practiced in Milwaukee for many years before going to Chicago. He was former professor of surgery at Rush Medical College and chief of staff at

Presbyterian Hospital. The estate is to remain in trust, as provided by the will, for the benefit of Dr. Senn's widow for her lifetime.

Drs. Lincicome and Rasmussen Jr. Appointed to Faculty.—David R. Lincicome, Ph.D., assistant professor of parasitology at the University of Kentucky, Lexington, has been appointed assistant professor of parasitology in the department of microbiology at the University of Wisconsin Medical School, Madison. Dr. Lincicome received his master's degree from the University of Illinois in 1937 and his doctor of philosophy degree in parasitology from Tulane University of Louisiana, New Orleans, in 1941. Dr. A. Frederick Rasmussen Jr., formerly associated with the Army Medical Corps and Graduate Medical School at Walter Reed Hospital in Washington, D. C., has been appointed associate professor of microbiology and preventive medicine. He obtained his Ph.D. degree from the University of Wisconsin in 1941 and his M.D. degree in 1944. Following an internship, Dr. Rasmussen was a member of the Army Medical Corps. For the past two years he has been working chiefly in the fields of rickettsial bodies and viruses.

VIRGINIA

Spring Graduate Course in Ophthalmology.—The twenty-first annual Spring Graduate Course of the Gill Memorial Eye, Ear and Throat Hospital, Roanoke, will be given April 5-10. *Among the guest speakers in ophthalmology will be Professor* Adalbert Fuchs, UNRRA-World Health Organization, Nanking - Shanghai, China; Drs. Conrad Berens, New York; Albert D. Ruedermann, Detroit; Edwin B. Dunphy, Boston; Trygve Gunderson, Boston; John M. McLean, New York, and Alston Callahan, Birmingham, Ala.

PUERTO RICO

Municipal Hospital Improvement Program.—A vast municipal hospital improvement program is under way in Puerto Rico with an appropriation of $793,000 voted by the insular legislature last year. A special construction agency has already completed construction of five new hospitals with a capacity of from sixteen to twenty beds each and is now nearing completion of new units for six other municipalities. New equipment will be purchased for all these units. In the city of San Juan, with an additional special appropriation amounting to $75,000, the following projects for the improvement of hospital facilities are being carried out: (1) addition to the Surgery Hospital in San Juan and (2) construction of a two story building for the Pathology Department. This building will consist of an autopsy room, a morgue and facilities for pathologic services. For the first time in the history of medical services in Puerto Rico forensic medical services will be provided in the municipal hospital of San Juan, when these improvements will be completed. The organization of this service is being carried on by the government of the city of San Juan and the insular office of the attorney general.

GENERAL

Meeting on Physical Medicine.—The spring session of the eastern section of the American Congress of Physical Medicine will meet at 2 p.m., Saturday, April 10, at Jefferson Medical College of Philadelphia. The program includes a symposium on the effect of physical inactivity and of exercise in the afternoon, and a roundtable discussion on low back pain and the sciatic syndrome in the evening at the Benjamin Franklin Hotel.

American National Red Cross Drive in March—The American National Red Cross will conduct its annual campaign this month to raise $75,000,000. During the past year, disasters totaled about three hundred and more than 300,000 persons were aided in emergencies that followed in their wake. In addition, there are 18,000,000 war veterans, a substantial segment of whom seek and require the services and assistance of the Red Cross, both on the chapter level and in government hospitals.

Examination of Orthoptic Technicians.—The annual examination of orthoptic technicians by the American Orthoptic Council will be conducted in September and October. The written examination will be nonassembled and will take place September 9 in certain assigned cities and offices under the proctorship of designated ophthalmologists. The oral and practical examinations will be October 9 in Chicago, just preceding the meeting of the American Academy of Ophthalmology and Otolaryngology. Application for examination will be received by the office of the secretary of the American Orthoptic Council, Dr. Frank D. Costenbader, 1605 Twenty-Second Street N.W., Washington 8, D.C., and must be accompanied by the examination fee of $25.

National Negro Health Week.—Health plans for the individual and the family will be emphasized during National Negro Health Week, April 4-11, sponsored annually by the Public Health Service of the Federal Security Agency. Participating communities will urge each Negro family to clean home and premises, check health habits, seek proper medical aid and obtain necessary corrective treatment. Negro children will receive physical check-ups at school and will learn the fundamentals of good health through health plays and contests. Special tribute will be paid to the founder of the Health Week movement, Booker T. Washington, whose April 5 birthday determines the time of the observance. More than 12,500 communities in thirty-six states and territories took part in the 1947 Health Week. The All-America trophy for the best Health Week and year-round program was awarded to Savannah-Chatham County, Georgia.

Board of Orthopaedic Surgery.—At its annual meeting in Chicago January 24, the American Board of Orthopaedic Surgery passed a resolution to increase the examination fee for Part II of the examination of the board from $35 to $50. This increase is now in effect, and candidates applying for Part II to be given in January 1949 are notified of this change. There is no change in the fee of $15 which is submitted with the application. The deadline for receipt of applications for Part II of the examination has been established as August 15. Correspondence and applications should be directed to the secretary of the board, Dr. Francis M. McKeever, 1136 West Sixth Street, Los Angeles 14. Checks should be made out to the American Board of Orthopaedic Surgery, Inc. Applications for Part I of the examination, to be given in the spring of 1949, must be received by the secretary not later than Jan. 1, 1949. There is no change in fees in connection with Part I of the examination.

Aid to Neurosurgeons in Europe.—At a meeting of the Academy of Neurological Surgery, a neurosurgeons' fund was initiated to send food and clothing to neurosurgeons in Europe. An appeal has been made to all neurologic surgeons in the United States and Canada, according to Dr. Joseph P. Evans, University of Cincinnati, secretary-treasurer of the fund. Dr. Evans recently returned after serving in Austria on a medical mission sponsored by the Unitarian Service Committee and the United Nations World Health Organization; others on the committee are: Dr. Howard C. Naffziger, San Francisco, chairman of the 1946 Unitarian Service Committee mission to Poland; Dr. Leo M. Davidoff, Brooklyn, member of the committee's 1946 mission to Czechoslovakia; Dr. A. Earl Walker, Baltimore; Dr. Franc D. Ingraham and Dr. W. Jason Mixter, Boston; Dr. Percival D. Bailey, Chicago, and Dr. Wilder G. Penfield, Canada.

Amputee Institute.—The second annual Amputee Institute will be held April 1, 8, 15, 22 and 29 at the Hasbrouck Heights Hospital in New Jersey. The institute will endeavor to correlate the efforts of the general surgeon, the orthopedic surgeon, the limb manufacturer and associated interests and promote for civilian amputees the same help as that provided by the Army and Navy for members of the armed forces who lost limbs in World War II. The institute will be under the personal direction of Dr. Henry H. Kessler, Newark, N. J., chairman of the Rehabilitation Committee of the American Medical Association Council on Industrial Health. In connection with the institute an intensive course in amputation and selection of prosthesis will be given for physicians and associated workers from 9 a.m. to 12 noon and from 2 to 5 p.m. Sponsors of the institute are reported to be the Hasbrouck Heights Hospital Association, the National Council of Rehabilitation, the New Jersey State Elks Crippled Children's Committee, Orthopedic Appliance and Limb Manufacturers Association, the New Jersey Crippled Children's Commission and the Federal Security Agency's Office of Vocational Rehabilitation. The registration fee is $10. Those planning to attend should notify the registrar, Hasbrouck Heights Hospital.

Joint Crystallographic Meeting.—The American Society for X-Ray and Electron Diffraction and the Crystallographic Society of America will hold their first joint meeting at Yale University, New Haven, Conn., April 1-3. Detailed notices have been sent to members of the two societies. Nonmembers who desire information may obtain it from Elizabeth A. Wood, secretary, American Society for X-Ray and Electron Diffraction, Bell Telephone Laboratories, Murray Hill, N. J., or William Parrish, secretary, Crystallographic Society of America, Phillips Laboratories, Inc., Irvington-on-Hudson, N. Y.

Broncho-Esophagological Association.—The twenty-ninth annual meeting of the American Broncho-Esophagological Association will be held in Atlantic City, N. J., at Chalfonte-Haddon Hall April 7-8. A resume of the program follows:

Louis H. Clerf, Philadelphia, Bronchial Adenomas.
Joseph P. Atkins, Philadelphia, Fibrocystic Disease of the Pancreas and Its Relation to Pulmonary Suppuration.
Clyde Heatly, Rochester, N. Y., Bronchoscopic Examinations in the Newborn.
Paul H. Holinger, Chicago, Tracheal and Bronchial Obstruction Due to Cardiovascular Anomalies.
Charles M. Norris, Philadelphia, Bronchospirography.
F. Johnson Putney, Philadelphia, Hiatus Hernia of the Esophagus.
Archibald R. Judd, Hamburg, Pa., Syphilitic Tumor of the Bronchus.
Chevalier L. Jackson, Philadelphia, The Present Status of Broncho-Esophagology in Latin America.
William P. Longmire, Jr., Baltimore, Reconstruction Surgery of the Trachea.
John J. O'Keefe, Philadelphia, Streptomycin Therapy in Tracheal and Bronchial Tuberculosis.
Ricardo Tapia, Mexico, D.F., Mexico, Rhinoscleroma of the Bronchus.
Francis W. Davison, Danville, Pa., Allergic Manifestations of Pulmonary Disease.
Stanton A. Friedberg, Chicago, Hemiptysis Due to Chronic Mediastinal Venous Obstruction.
Frederick T. Hill, Waterville, Maine, Granuloma of the Larynx Due to Intratracheal Anesthesia.

American Institute of Biological Sciences.—An American Institute of Boilogcal Sciences was formally established February 20 to help the various biologic societies to discharge more effectively those functions which are common concern to them all, but which they cannot adequately exercise as individual societies. As a part of the National Research Council the Institute will also provide biologists with an agency through which they can maintain close relations with governmental activities and other fields of science represented within the National Research Council. The governing board elected the following officers: chairman, Ralph E. Cleland, Ph.D., Indiana University, Bloomington-Indianapolis; vice chairman, Elmer G. Butler, Ph.D., Princeton University, Princeton, N. J.; members for three years, Wallace O. Fenn, Ph.D., Rochester, N. Y.; member for two years, Theodore C. Byerly, Ph.D., Bureau of Animal Husbandry, U. S. Department of Agriculture, Washington, D. C., and member for one year, Frank P. Cullinan, Ph.D., Bureau of Plant Industry, U. S. Department of Agriculture, Beltsville, Md. Twelve societies and the National Research Council named directors to the governing board, and twelve other societies that consider joining the Institute appointed observers.

Fellowships in Child Guidance Clinic Psychiatry.—The American Association of Psychiatric Clinics for Children is offering fellowships for training in child guidance clinic psychiatry under the auspices of the U. S. Public Health Service, the Commonwealth Fund and some local funds. The training is for positions in community clinics where psychiatrists, psychologists, social workers and others collaborate in the treatment of children with emotional or mental illness. Most of the fellowships are for two years, some for one. The stipend is $3,000 for the first year, more for the second. Prerequisites are graduation from an approved medical school, a general internship and two years of general psychiatry. Opportunity is provided for the fellow to develop his own skills in an outpatient service with the support of a carefully planned training program and adequate supervision. The training centers are selected on the basis of standards which have been established by the association, and the fellowships are awarded by a committee of this organization. For information write Dr. Abraham Z. Barhash, executive assistant, the American Association of Psychiatric Clinics for Children, 1790 Broadway, New York 19.

International Congress on Mental Health.—Grants totaling $50,000 to support the contribution of the United States to the first International Congress on Mental Health to be held in London next August were announced February 11 by Dr. Frank Fremont-Smith, chairman of the Executive Committee of the International Committee for Mental Hygiene, 1790 Broadway, sponsor of the congress. "Mental Health and World Citizenship" will be dealt with at the congress, which will be attended by an estimated two thousand psychiatrists, social workers and others from forty-four countries, including five hundred persons from the United States. According to Dr. Fremont-Smith, it is planned to form a World Federation for Mental Health as a result of the congress. Two central commissions have been set up in New York, one under the chairmanship of Lyman Bryson, LL.D., New York, to collate material on the general theme, the other under the chairmanship of Dr. David M. Levy, to report on the effect of war on children. To carry out the work of the congress additional funds are required, it was pointed out by Dr. Fremont-Smith, and plans are under way to raise an additional $200,000. Donors are the Commonwealth Fund, 41 East Fifty-Seventh Street, $20,000; the Milbank Memorial Fund, 40 Wall Street, $10,000, and the United States Public Health Service, Washington, D. C., $20,000. Previous donations totaling $35,000 have already been announced from Imperial Chemical Industries, Ltd., Unilever, Ltd. (Lever Bros.) London, and the Josiah Macy Jr. Foundation of New York City.

United Nations Crime Prevention Study.—Dr. Manfred S. Guttmacher, Baltimore, has been appointed consultant-psychiatrist to the World Health Organization Interim Commission. He will take part in a special study of the prevention of crime and the treatment of offenders undertaken by the social commission of the United Nations Economic and Social Council. The purpose of the study is to provide a plan for international action. Dr. Guttmacher's work will relate to: heredity as a factor in the causation of crime; prevention of crime; medical and psychiatric factors in the genesis of early criminal careers; medical and psychiatric methods for the treatment of juvenile and adolescent offenders, and medical and psychiatric care for the treatment of adults in confinement. During the war Dr. Guttmacher served as a lieutenant colonel in the Surgeon General's office and was awarded the Legion of Merit for his psychiatric work. He is psychiatric consultant to the Second Army and consulting psychiatrist to the Veterans Administration.

Heroin Seized in New York.—The *New York Times* reports the seizure of $150,000 worth of heroin (diacetylmorphine) smuggled from Turkey and the arrest on February 7 of two seamen for its possession. The 73,416 grains (4,757 Gm.) of the drug were carried in a cigar box. The men, who were about to board a train to Philadelphia when arrested, said they had obtained the diacetylmorphine on the Istanbul waterfront in exchange for American goods scarce in Turkey. The men, according to Col. Garland H. Williams, supervisor of the United States Bureau of Narcotics, district 2, had made frequent trips to Philadelphia since their arrival trying to sell the drug at high prices.

Dr. Cori Awarded Gibbs Medal.—Dr. Carl F. Cori, professor of biochemistry, Washington University School of Medicine, St. Louis, a 1947 Nobel Prize winner, has been designated the winner of the Willard Gibbs Medal of the Chicago section of the American Chemical Society. Dr. Cori's achievements in research on processes by which the human body converts sugar into energy won the award.

Personal.—Dr. John Rock, Brookline, Mass., and Dr. Richard N. Pierson, New York, in recognition of their service toward healthier marriage and parenthood were given the Albert and Mary Lasker Foundation Awards for 1948 at the recent annual dinner of the Planned Parenthood Federation of America in New York.

FOREIGN

Service Committee Opens Polish Hospital.—The Kosciuszko Hospital was formally opendd in Piekary Slaskie, Poland, February 22 in the presence of the of the officials of the Polish government and the United States Embassy. The hospital is the project of the Unitarian Service Committee and the Polish National Social Insurance Institution. It stands on a filled-in zinc mine in the Silesiain mining valley and is to serve the medical needs of this territory, particularly those of the miners. Traumatic surgery will be the specialized field of the hospital's activity. The Unitarian Service Committee has undertaken to supply American personnel to work with the Polish staff and to teach newest American technics. Much of the equipment has already been installed. More than 100 persons are now hospitalized, and eventually the hospital will have a capacity of three hundred to three hundred and fifty beds.

CORRECTION

Carbon Monoxide Poisoning.--In the abstract under this title in THE JOURNAL, Dec. 27, page 1182, line 14 of the second column should read: 'oxygen with 5 per cent carbon dioxide' not carbon monoxide.

Deaths

James Vance May ⊕ Belmont, Mass.; born in Lawrence, Kan., on July 6, 1873; University of Pennsylvania Department of Medicine, Philadelphia, 1897; an Affiliate Fellow of the American Medical Association; specialist certified by the American Board of Psychiatry and Neurology; lecturer on mental hygiene at the Harvard University School of Public Health from 1933 to 1936; member and past president of the New England Society of Psychiatry, Massachusetts Psychiatric Society and the American Psychiatric Association; fellow of the American Association for the Advancement of Science and the American Academy of Arts and Sciences; member of the International Committee for Mental Hygiene and the National Committee for Mental Hygiene; corresponding member of the Royal Medico-Psychological Association of Great Britain and foreign associate member of the Société Médico-Psychologique, Paris; served during the Spanish-American War and World War I; at one time assistant physician of the Binghamton (N. Y.) State Hospital, superintendent of the Matteawan State Hospital, Fishkill-on-Hudson, N. Y., Grafton (Mass.) State Hospital and the Boston State Hospital; author of "Mental Diseases"; died in the Faulkner Hospital, Boston, Dec. 24, 1947 aged 74

Harry Brooker Mills, *Philadelphia; born April 23, 1869;* Medico-Chirurgical College of Philadelphia, 1897; emeritus professor of pediatrics at the Temple University School of Medicine; formerly assistant professor of pediatrics at his alma mater; member of the American Medical Association; served as president of the staff and chairman of the medical board of Temple University Hospital; consulting pediatrist at St. Agnes' Hospital; affiliated with the Skin and Cancer Hospital, the Philadelphia Convalescent Home for Children, at Langhorne, and the Ocean City Seashore Home for Babies; member of the consulting staff of the Eastern State Penitentiary and of the courtesy staffs of the Jewsh, Germantown and Doctors' hospitals; the H Brooker Mills Pediatric Society, a Temple University organization, was founded in his honor; died in Ridley Park Dec. 30, 1947, aged 78.

Frank Chaffee Neff ⊕ Kansas City, Mo.; born in Winchester, Ind., in 1872; University Medical College of Kansas City, 1897; in 1924 joined the faculty of the University of Kansas School of Medicine in Kansas City, Kan., where he retired as professor and head of the department of pediatrics in 1945; an Affiliate Fellow of the American Medical Association, serving as secretary of the Section on Diseases of Children, 1912-1913, and chairman, 1920-1921 specialist certified by the American Board of Pediatrics, Inc.; member of the American Pediatric Society and the American Academy of Pediatrics; past president of the Central States Pediatric Society; affiliated with the Children's Mercy and Kansas City General hospitals; died in the University of Kansas Hospital, Kansas City, Kan., Dec. 3, 1947, aged 75.

Nathan Osher Ratnoff ⊕ *New York; born in 1875;* Baltimore University School of Medicine, 1899; president of the American Jewish Physicians' Committee, which he organized in 1921 to build and maintain a medical school and university hospital as a part of the Hebrew University in Palestine, where he was a governor; this work resulted in the establishment of the Nathan Ratnoff Medical School of the Hebrew University; for many years a trustee of the Foundation of Jewish Maternity Hospital, where he served as attending obstetrician, medical director and secretary to the board of directors; consultant director and from 1930 until his retirement in 1945 medical director of Beth Israel Hospital; died Dec. 23, 1947, aged 72, of coronary sclerosis.

Noel Catching Womack ⊕ Jackson, Miss.; born 1879; Jefferson Medical College of Philadelphia, 1905; specialist *certified by* the American Board of Pediatrics; member of the American Academy of Pediatrics; fellow of the American College of Physicians; one of the organizers and first president of the Mississippi State Pediatric Society; consulting pediatrician to the Mississippi State Tuberculosis Sanatorium and the Mississippi State Charity Hospital; chief of the pediatric department of the Jackson Infirmary; died Dec. 26, 1947, aged 68, of coronary sclerosis.

Frank Peabody Atkinson ⊕ Columbus, Ohio; Ohio Medical University, Columbus, 1903; served during the Spanish-American War and World War I; died in the Grant Hospital Dec. 26, 1947, aged 70.

Benjamin Spafford Barnes ⊕ Shenandoah, Iowa; Rush Medical College, Chicago, 1909; past president of the Page County Medical Society; served during World War I; affiliated with the Hand Memorial Hospital, where he died Dec. 13, 1947, aged 63, of coronary occlusion.

Paul Hogue Beard, *Indianapolis; Northwestern University* Medical School, Chicago, 1927; member of the American Medical Association; fellow of the American College of Surgeons; served during World War II; affiliated with Methodist and St. Vincent's hospitals; died *Dec. 22, 1947,* aged 45.

Edward Bollinger, Columbia, Ill.; Illinois Medical College, Chicago, 1900; member of the American Medical Association; formerly affiliated with the state hospitals in Kankakee, Anna and Alton; died in the Christian Welfare Hospital in East St. Louis, Dec. 15, 1947, aged 71, of cerebral hemorrhage.

John Edson Bowers, Brandywine, Md.; George Washington University School of Medicine, Washington, D. C., 1908; died in the Providence Hospital, Washington, D. C., Dec. 16, 1947, aged 69.

Harry Edward Braner ⊕ Hamburg, N. Y.; University of Buffalo School of Medicine, 1905; examining physician for the draft board during World Wars I and II; affiliated with the Millard Fillmore Hospital in Buffalo and Our Lady of Victory Hospital in Lackawanna; died Dec. 2, 1947, aged 64, of coronary disease.

John Joseph Brennan ⊕ Scranton, Pa.; Medico-Chirurgical College of Philadelphia, 1898; past president of the Lakawanna County Medical Society; superintendent of the Westside Hospital, where he died Dec. 8, 1947, aged 73.

Luke D. Broughton, Brooklyn; Eclectic Medical College of the City of New York, 1881; New York Homeopathic Medical College, 1882; died Dec. 5, 1947, aged 88, of senility.

Thomas Earl Burgess, Toledo, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; formerly member of the city health department; died in Mercy Hospital Dec. 15, 1947, aged 81, of myocardial failure.

John Robert Burns, Penns Grove, N. J.; Bennett Medical College, Chicago, 1913; physician for du Pont de Nemours & Company; died Dec. 1, 1947, aged 59, of carcinoma of the esophagus.

Elizabeth M. Cahill, Chicago; Chicago College of Medicine *and Surgery, 1909; died in December 1947, aged 72.*

Paul Wiles Carmichael, Trinidad, Colo.; University of Colorado School of Medicine, Denver, 1915; member of the American Medical Association; affiliated with the Mount San Rafael Hospital; died in the Corwin Hospital, Pueblo, Dec. 21, 1947, aged 59, of carcinoma.

Willis H. Carr, Cynthiana, Ky.; Medical College of Ohio, Cincinnati, 1887; died Dec. 18, 1947, aged 84, of coronary occlusion.

John Blayney Claypool, Niles, Ohio; Hahnemann Medical College and Hospital of Philadelphia, 1893; died in a hospital at Youngstown Dec. 5, 1947, aged 78, of intestinal obstruction.

Emmanuel Robert Clemons, Chicago; Meharry Medical College, Nashville, Tenn., 1916; affiliated with Provident Hospital; died Dec. 5, 1947, aged 56, of coronary thrombosis.

George Vincent Coleman, Providence, R. I.; Harvard Medical Schol, Boston, 1919; member of the American Medical Association; chief surgeon for the Providence police and fire Departments; affiliated with St. Joseph Hospital and Providence Lying-In hospitals; died Dec. 10, 1947, aged 56, of pneumonia and myocarditis.

Frederic Charles Conway ⊕ Albany, N. Y.; Albany *Medical College, 1906;* associate professor of medicine at his alma mater; fellow of the American College of Physicians; member of the board of education and of the examining board of the state retirement system; member of the House of Delegates of the American Medical Association in 1939 and 1940; affiliated with St. Peter's Hospital; died Dec. 6, 1947, aged 65, of coronary thrombosis.

Elmer Humphrey Copeland, Northampton, Mass.; New York Homeopathic Medical College and Hospital, New York, 1893; member of the American Medical Association; affiliated with the Cooley Dickinson Hospital; vice president of the Nonotuck Savings Bank; died Dec. 25, 1947, aged 86, of heart disease.

Chester Owen Cramer ⊕ Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1932; served during World War II; member of the city board of health; affiliated with Mount Carmel Hospital; died Dec. 11, 1947, aged 43, of coronary thrombosis.

Ralph Cline Cross ⊕ Texarkana, Texas; University of Tennessee College of Medicine, Memphis, 1925; formerly secretary of the Bowie County Medical Society; served during World War I and on the Selective Service Board during World War II; died in the Michael Meagher Memorial Hospital, Texarkana, Ark., Dec. 15, 1947, aged 47, of heart disease.

Charles Leverett Curtis ⊕ Salem, Mass.; Medical School of Maine, Portland, 1909; fellow of the American College of Surgeons; member of the New England Surgical Society; affiliated with the Danvers (Mass.) State Hospital, Cable Hospital, Ipswich, North Shore Babies Hospital and the Salem Hospital, where he died Dec. 11, 1947, aged 62.

Charles Payson Deyoe, Pasadena, Calif.; University of Maryland School of Medicine, Baltimore, 1883; died Dec. 16, 1947, aged 87.

Hervey John Smith Dickson, Springfield, Ohio; Medical College of Ohio, Cincinnati, 1891; formerly health commissioner of Champaign County; died Nov. 17, 1947, aged 86.

Lucius Boardman Donkle ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; served as assistant clinical professor of surgery at the Loyola University School of Medicine on the staff of St. Bernard's Hospital; died January 7, aged 70, of carcinoma of the esophagus.

Wilbert G. Drinkwater ⊕ Gormania, W. Va.; Eclectic Medical Institute, Cincinnati, 1888; honorary life member of the West Virginia State Medical Association; died in the Uniontown (Pa.) Hospital Dec. 20, 1947, aged 87, of benign prostatic hypertrophy with uremia.

Gregory Joseph Egan ⊕ La Crosse, Wis.; Rush Medical College, Chicago, 1901; on the staff of St. Francis Hospital; died Dec. 6, 1947, aged 70, of intestinal carcinoma and bronchopneumonia.

Albert Mortem Elton ⊕ Newport, Ark.; University of Arkansas School of Medicine, Little Rock, 1906; fellow of the American College of Surgeons; past president of the Jackson County Medical Society; served during World War I; formerly affiliated with the U. S. Public Health Service; member of the board of trustees of the Arkansas State Teachers College at Conway; chairman of the board of directors of the First National Bank; died in a local hospital Dec. 17, 1947, aged 65.

Edward Harris Fischer ⊕ Louisville, Ky.; University of Louisville School of Medicine, 1917; served during World War I; died in St. Joseph Infirmary Dec. 19, 1947, aged 53.

Herbert Maurice Flemming ⊕ Ambridge, Pa.; University of Pittsburgh School of Medicine, 1927; affiliated with the Beaver Valley General Hospital in New Brighton and the Rochester (Pa.) General Hospital; died Dec. 2, 1947, aged 47, of injuries received when his automobile was struck by a truck near Aliquippa.

T. H. Fowler, Nobility, Texas (licensed in Texas under the Act of 1907; died Nov. 30, 1947, aged 73, of chronic myocarditis.

Arthur Sheldon Grant ⊕ New Britain, Conn.; University and Bellevue Hospital Medical College, New York, 1908; fellow of the Radiological Society of North America; served during World War I; for many years affiliated with the New Britain General Hospital; died Dec. 11, 1947, aged 67, of acute coronary occlusion.

Arthur Moses Greenwood ⊕ Boston; Harvard Medical School, Boston, 1902; specialist certified by the American Board of Dermatology and Syphilology; member of the American Dermatological Association, American Academy of Dermatology and Syphilology and the New England Dermatological Society; served on the staffs of the Massachusetts General, New England Deaconess and Palmer Memorial hospitals; died in Laconia, N. H., Dec. 14, 1947, aged 71, of cerebral hemorrhage.

Nettie Hammond, Hermosa Beach, Calif.; University of Southern California College of Medicine, Los Angeles, 1896; died Dec. 1, 1947, aged 78.

Hal White Hardin, Dallas, Texas; Baylor University College of Medicine, Dallas, 1939; member of the American Medical Association; served during World War II; on the staffs of the Baylor, Children's and Veterans Administration hospitals; died Dec. 29, 1947, aged 32, of carcinoma of the colon and liver.

Timothy Louis Harrington, Milwaukee; University of Pennsylvania Department of Medicine, Philadelphia, 1895; member of the American Medical Association; formerly medical director of the River Pines Sanatorium in Stevens Point, Wis.; for many years a member of the staff of the Wisconsin Anti-Tuberculosis Association; died Dec. 13, 1947, aged 81, of coronary heart disease.

Abel Le Compte Hill, Kings Mountain, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1930; member of the American Medical Association; a captain in the medical corps, Army of the United States, with the 82d airborne division during World War II; died suddenly Dec. 19, 1947, aged 40.

Myrtle Mary Ozias Hill, Kansas City, Mo.; Barnes Medical College, St. Louis, 1909; for many years on the staff of St. Joseph Hospital, where she died Dec. 19, 1947, aged 61, of uremia secondary to carcinoma.

George Franklin Holitik, Waldron, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1923; died Dec. 15, 1947, aged 48

Joseph P. Holt Sr., Versailles, Ky.; Louisville (Ky.) Medical College, 1904; affiliated with Woodford Memorial Hospital; died Dec. 19, 1947, aged 64, of coronary occlusion.

Samuel Rice Hopkins, Dearborn, Mich.; Rush Medical College, Chicago, 1900; fellow of the American College of Surgeons; formerly professor of surgical pathology at Creighton University School of Medicine in Omaha; an officer during World War I; medical advisor for the Detroit Reginoal Office of the Disabled American Veterans and the American Legion; for many years affiliated with the Veterans Administration Hospital, where he died Dec. 19, 1947, aged 71, of cerebral hemorrhage and hypertension.

John Freeman Humphrey, Saratoga Springs, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1891; member of the American Medical Association; served as a member and president of the board of education; for many years affiliated with the Saratoga Hospital, where he died Dec. 5, 1947, aged 82.

Douglas Algot Jackson, Kansas City, Mo.; University of Louisville (Ky.) School of Medicine, 1934; member of the American Medical Association; an officer in the medical corps, Army of the United States, during World War II; affiliated with the Research, St. Joseph and Trinity Lutheran hospitals; died Dec. 7, 1947, aged 39, of heart disease.

Rilus Eastman Jones, Los Angeles; Medical College of Indiana, Indianapolis, 1901; died Dec. 8, 1947, aged 69.

Edward Payson Judd, Cleveland; Western Reserve University Medical Department, Cleveland, 1931; affiliated with the Lakeside Hospital, where he died Dec. 31, 1947, aged 42, of pneumonia.

Elizabeth Abbie Keay, Mars Hill, Maine; Woman's Medical College of Baltimore, 1910; died Dec. 14, 1947, aged 73.

Frank John Kiefer, Louisville, Ky.; Hospital College of Medicine, Louisville, 1898; member of the American Medical Association; died Dec. 16, 1947, aged 84.

George Clifford King ⊕ Fall River, Mass.; Tufts College Medical School, Boston, 1909; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics and the New England Pediatric Society; formerly member of the board of health; affiliated with Truesdale Hospital; died Dec. 21, 1947, aged 61, of coronary thrombosis.

John Bartlett Kistler, Newcomerstown, Ohio; Eclectic Medical College, Cincinnati, 1924; member of the American Medical Association; formerly medical inspector in the division of communicable diseases of the state department of health; died Dec. 22, 1947, aged 51, of heart disease.

Jacob Kramer, Los Angeles; Long Island College Hospital, Brooklyn, 1907; died in December 1947, aged 62.

Frederick Milton Kueffer, San Carlos, Calif.; Homeopathic Medical College of Missouri, St. Louis, 1905; died in December 1947, aged 71.

Stanley Joseph Lassaline, Detroit; Detroit College of Medicine and Surgery, 1915; member of the American Medical Association; died Dec. 5, 1947, aged 54, of coronary thrombosis.

William John Lord, Great Barrington, Mass.; Albany (N. Y.) Medical College, 1939; interned at St. Peter's Hospital in Albany, N. Y., and St. Joseph's Hospital in Toronto, Canada; served during World War II; diplomate of the National Board of Medical Examiners; died Dec. 16, 1947, aged 40, of a possible fracture of skull and gastric hemorrhage.

Forest Ray Mildren ⊕ Las Vegas, Nev.; Chicago College of Medicine and Surgery, 1916; served in the medical corps of the U. S. Army in France during World War I; died Dec. 14, 1947, aged 57, of coronary thrombosis.

Frederick Christopher Miller, Prospect, Ky.; Lousvlle (Ky.) Medcal College, 1890; died Dec. 25, 1947, aged 79.

Hugo Miller, Kinmundy, Ill.; Beaumont Hospital Medical College, St. Louis, 1895; member of the American Medical Association; died in the Salem (Ill.) Memorial Hospital Dec. 14, 1947, aged 83, of pneumonia.

Samuel Rush Miller ⊕ Knoxville, Tenn.; born in Bedford County, Tenn., July 7, 1869; Vanderbilt Universty School of Medicine, Nashville, 1893; member of the House of Delegates of the American Medical Association in 1911, 1912 and 1916; fellow of the American College of Surgeons; district surgeon for the Louisville and Nashville Railroad; surgeon for the Southern Railway; consulting surgeon for the Knoxville General Hospital; visting surgeon for St. Mary's Memorial Hospital and the Fort Sanders Hospital, where he died Dec. 24, 1947, aged 78, of Parkinson's disease.

Harry Fitzroy Mitchell ⊕ South Bend, Ind.; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1889; affiliated wth the Memorial Hospital, where he died Dec. 21, 1947, aged 81, of carcinoma of the prostate and pneumonia.

Edwin Jay Moffit, Los Angeles; Drake University Medical Department, Des Moines, 1896; member of the American Medical Association; affiliated with the Presbyterian Hospital, Olmstead Memorial, where he died Dec. 20, 1947, aged 75, of lymphatc leukema and coronary occlusion.

Caldwell Morrison, South Orange, N. J.; New York Homeopathic Medical College and Hospital, New York, 1889; member of the Newark Induction Board during World Wars I and II; affiliated with the East Orange (N. J.) General Hospital; died in the Fair Oaks Sanatorium in Summit Dec. 24, 1947, aged 81, of coronary sclerosis.

Charles Henry Muschlitz ⊕ Slatington, Pa.; Jefferson Medical College of Philadelphia, 1904; fellow of the American College of Surgeons; member of the school board; director of the Slatington Citizens National Bank; affiliated with the Allentown (Pa.) Hospital; died Dec. 3, 1947, aged 66, of ruptured abdominal aneurysm.

Edwin Dunn Newman, Brooklyn; Long Island College Hospital, Brooklyn, 1896; died Dec. 20, 1947, aged 73, of cerebral hemorrhage.

John C. Nunn, Quincy, Ill.; Hospital College of Medicine, Louisville, 1896; died Dec. 24, 1947, aged 75, of a malignant tumor of the right parotid gland.

Howard Holland Nye ⊕ Paterson, N. J.; Jefferson Medical College, 1921; past president of the Passaic County Medical Society; affiliated with the Paterson General Hospital; died Dec. 28, 1947, aged 57, of coronary thrombosis.

Ewing Lamb Palmore, Glasgow, Ky.; Hospital College of Medicine, Louisville, 1905; member of the American Medical Association; past president of the Barren County Medical Society; affiliated with the T. J. Samson Community Hospital, where he died Dec. 25, 1947, aged 68, of cerebral hemorrhage.

Ralph Emory Peck, Cordelia, Calif.; Cooper Medical College, San Francisco, 1898; died Dec. 18, 1947, aged 76.

George Allen Perkins ⊕ Washington, Pa.; University of Cincinnati College of Medicine, 1916; past president of the Washington County Medical Society; affiliated with Washington Hospital; died Dec. 19, 1947, aged 62.

John Howard Rahter ⊕ Harrisburg, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; died in Harrisburg Hospital Dec. 17, 1947, aged 63, of coronary thrombosis.

Augustus Baxter Riley, Hartford, Ky.; Louisville Medical Colege, 1906; served during Word War I; died Dec. 19, 1947, aged 71, of heart disease.

Lambert William Rosenbaum, Chicago; Jenner Medical College, Chicago, 1913; member of the American Medical Association; died Dec. 29, 1947, aged 64, of carcinoma of the liver.

John Phillip Saling, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1899; member of the American Medical Association; affiliated with St. Joseph's Hospital; died Dec. 24, 1947, aged 73, of cerebral arteriosclerosis.

Thomas Nelson Sample, Fresno, Calif.; Cooper Medical College, San Francisco, 1901; member of the American Medical Association; died Dec. 23, 1947, aged 70, of uremia.

Carl Eric Sandberg, Chicago; Chicago College of Medicine and Surgery, 1908; served on the staff of the Englewood Hospital, where he died January 8, aged 78, of cerebral hemorrhage.

William David Sansum ⊕ Santa Barbara, Calif.; Rush Medical College, Chicago, 1915; formerly practiced in Chicago, where he was an associate in medicine at Rush Medical College; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the National Gastroenterological Association; affiliated with the Santa Barbara Cottage Hospital; died January 5, aged 67, of pontine hemorrhage.

Frank George Scammell, Trenton, N. J.; Medico-Chirurgical College of Philadelphia, 1899; member of the American Medical Association; fellow of the American College of Surgeons; past president of the Medical Society of New Jersey and of the Mercer County Medical Society; surgeon to the Mercer Hospital; consulting surgeon, Orthopedic Hospital, Trenton, and the New Jersey State Hospital, Greystone Park, died Dec. 6, 1947, aged 70, of carcinoma of the prostate.

John Francis Schefcik, Los Angeles; Minneapolis College of Physicians and Surgeons, 1900; also a graduate in pharmacy; died Dec. 23, 1947, aged 75.

Philipp Schonwald ⊕ Seattle; Medizinische Fakultät der Universität, Wien, Austria, 1905; fellow of the American College of Chest Physicians and of the American College of Physicians; died Dec. 20, 1947, aged 67.

Elias Selinger ⊕ Chicago; Northwestern University Medical School, Chicago, 1924; professor of ophthalmology at the Cook County Graduate School; at one time on the faculty of Rush Medical College; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; on the staffs of the Michael Reese, Cook County and Mount Sinai hospitals; died in El Paso, Texas, Dec. 21, 1947, aged 49, of coronary occlusion.

Jesse Washington Shaw, St. Louis; St. Louis College of Physicians and Surgeons, 1908; found dead Dec. 2, 1947, aged 63, of ruptured left ventricle.

Edwin Heddon Shepard ⊕ Syracuse, N. Y.; Syracuse University College of Medicine, 1905; served on the faculty of his alma mater; chief examiner for the Syracuse branch of the Travelers Insurance Company; past president of the Syracuse Academy of Medicine; formerly on the staff of the Crouse-Irving Hospital, where he died Dec. 26, 1947, aged 69, of acute myocardial infarction, coronary sclerosis and diabetes mellitus.

William Palmer Sherman, Aurora, Ill.; Rush Medical College, Chicago, 1889; fellow of the American College of Surgeons; affiliated with St. Joseph Mercy Hospital, where he died Dec. 10, 1947, aged 84, of hypostatic congestion of the lungs.

William Arthur Shields, Sacramento, N. Mex.; University of Texas School of Medicine, Galveston, 1902; died in the Municipal Hospital in Artesia recently, aged 69, of coronary occlusion.

John M. Shirley, St. Marys, Mo.; St. Louis College of Physicians and Surgeons, 1890; also a graduate in pharmacy; died Dec. 9, 1947, aged 89, of bronchopneumonia.

Robert William Siddle, Powell, Wyo.; Rush Medical College, Chicago, 1934; died recently, aged 45, of heart disease.

Ferdinand Francis Siegel, Brooklyn; Long Island College Hospital, Brooklyn, 1916; member of the American Medical Associaton; served during World War I; formerly supervising medical inspector for the board of health; died in the Bushwick Hospital Dec. 5, 1947, aged 56, of chronic nephritis and hypertension.

Cash L. Simmons, Long Beach, Calif.; Ensworth Medical College, St. Joseph, 1892; died Dec. 26, 1947, aged 81.

Richard M. Skinner, Flemingsburg, Ky.; Homeopathic Hospital College, Cleveland, 1886; died in Ironton, Ohio, Dec. 20, 1947, aged 85.

Archibald Smith, Atlanta, Ga.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; member of the American Medical Association; formerly on the faculty of the Atlanta School of Medicine; served during World War I; affiliated with the Grady and Crawford W. Long hosptals; died Dec. 20, 1947, aged 73, of cerebral hemorrhage.

Seth Paine Smith ⊕ St. Louis; Washington University School of Medicine, St. Louis, 1905; formerly on the faculty of Barnes Medical College; member of the staff of the De Paul Hospital; died in December 1947, aged 65, of coronary sclerosis.

Frank Wallace Smith, York Village, Maine; Dartmouth Medical School, Hanover, N. H., 1883; died Dec. 11, 1947, aged 88.

Andrew Jackson Stufflebam, Humansville, Mo.; St. Louis College of Physicians and Surgeons, 1898; member of the American Medical Association; past president of the Dallas-Hickory-Polk Counties Medical Society; served as secretary of the city board of health; died recently, aged 75.

Henry Fletcher Tatum, Meridian, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1897; served on the staff of the East Mississippi State Hospital; died Dec. 11, 1947, aged 76.

Clinton Michael Young, Kittanning, Pa.; Baltimore Medical College, 1906; died Dec. 3, 1947, aged 68.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 8, 1948.

New Method for Relief of Pain in Intractable Pelvic Cancer

From the Postgraduate Medical School Dr. Maeve Kenny has described in the *British Medical Journal* a method of caudal anesthesia which she has found successful for the relief of pain in cancer of the pelvic organs intractable to surgery. The method has the great advantage that it can be carried out by the general practitioner. The subjects of pelvic cancer may die hard, often in the prime of life and capable of service and happiness if relief of pain can be given in their remaining years without impairing their mental and bodily functions. Opium in increasing doses, neurectomies and intrathecal injection of alcohol increase the nursing responsibilities and make the last days odious to the sufferer and friends.

Caudal anesthesia is produced as follows: After anesthetizing the caudal opening of the sacral canal and the tissues down to the tough fibrous membrane closing the sacral canal by the injection of procaine solution, a 3 inch (7.62 cm.) needle is pushed through the membrane for a distance of 1 inch (2.54 cm.). The needle is attached to a syringe containing the solution of procaine, which is injected boldly. The syringe in then replaced by a 10 cc. one charged with warmed "protocaine" (procaine with butyl aminobenzoate and benzyl alcohol in arachis oil). This is injected steadily to an amount varying with the skeletal size of the patient, usually 40 to 60 cc. in about ten minutes, meanwhile testing the levels of cutaneous anesthesia to pinprick of the perineum, thighs, buttocks and abdominal wall, and asking the patient when the pain is relieved. When this is known, or if the level of the anesthesia rises to the nipple level, the injection is discontinued.

Sometimes complete relief is obtained at once, but sometimes only when the patient is eased from the left side on which she has been lying onto the right side, is made to stand up, or to lie on the back with the foot of the bed raised. A dramatic case was that of an old dancer brought to the clinic in a wheelchair with her thighs drawn up in painful spasm due to cancerous infiltration of the psoas muscles. After caudal anesthesia she straightened herself and smilingly assumed poses of the ballet, to the delight of the students. She died of cardiac metastases from cancer of the cervix. Seventeen patients with cancer of the uterus, prostate or vagina were treated. All obtained relief except those who had secondary neoplasms beyond the reach of the injections. No urinary or fecal incontinence followed use of this method, which is within the competence of the ordinary practitioner and which enables those with pelvic cancer to end their days in comparative comfort.

British Lecturers Abroad

Illustrations of the fact that one result of the war was the passage to England of the hegemony in European medicine which was claimed for Germany have been given in previous letters to The Journal. The latest manifestation is the despatch by the British Medical Association of lecturers to various European countries. A year age the council set aside the sum of $4,000 to provide lectures by distinguished practitioners to the medical profession in Europe, especially in countries occupied by the enemy during the war. Lectures on clinical pathology have been delivered in Czechoslovakia by Dr. S. C. Dyke; in Denmark on plastic surgery by Professor T. P. Kilner; in Norway on orthopedics by Mr. L. Lawson Dick, and in Spain and the Netherlands on chest surgery by Mr. C. Price Thomas. At the end of February Mr. N. R. Barrett is to visit Denmark to lecture on recent advances in chest surgery.

On returning from Norway Mr. Lawson Dick reported that medicine there bears marks of the long isolation which the country suffered. In particular the treatment of fractures shows much more of the influence of Böhler than is seen in Britain. Nearly all the doctors he met had been in concentration camps for varying periods.

ITALY

(From Our Regular Correspondent)

Jan. 15, 1948.

Italian Urologic Society

At the Twentieth National Congress of the Italian Urologic Society in Rome Professor M. Sorrentino, from the University in Naples presented a report on urinary incontinence. He discussed the various forms of incontinence: essential; that of nervous origin; regurgitation; enuresis of women. He described various methods of treatment with special consideration of the treatment that he recommends, which consists in irradiation of the bladder by short waves and the surgical treatment of enuresis in women.

Ascoli (Milan) called attention to the importance of the integration of psychic and psychopedagogic factors in the other methods of treatment of infantile enuresis. Bonino (Turin) after describing two signs, a cystoscopic and roentgenographic one, which he had observed, expressed his opinion that the method of choice may be surgical, consisting in the reconstruction of the neck of the bladder by the vaginal route in women and by the transvesical route in men.

Caporeale (Turin) discussed the surgical treatment of urinary incontinence by recalling Rochet's intervention (section of the hypogastric nerve) in cases refractory to medical and surgical treatment. The speaker made a therapeutic experiment by means of infiltration of the hypogastric ganglion with an anesthetic or alcohol in order to obtain an interruption of the peripheral nervous vesical system; on the base of the results obtained (2 cures, 3 therapeutic failures) he stated that this method should be given therapeutic trial in cases refractory to other methods of treatment.

Therapy of Cancer of the Prostate

Professor Musiani of Bologna presented a review of synthetic estrus-producing substances which may be employed for treatment of cancer of the prostate. He compared the results obtained with castration and those obtained with the administration of estrus-producing compounds. He concluded that the results obtained with the estrogenic treatment may be considered satisfactory, because in 51 per cent of the cases an immediate success was obtained with regard either to the tumor or to the metastases.

Professor Mingazzini reported on the diagnosis of cancer of the prostate. Based on his own statistics, those of others and studies of 1,700 patients, 188 of whom had cancer, he examined the incidence of cancer and the relation of cancer to hypertrophy; he insisted on the importance (1) of the data furnished by the objective examination and (2) particularly of the changes in the prostate (with regard to form, surface and consistency) and of pain. The roentgenologic, the cystoscopic and the ureteroscopic observations are likewise of great importance. With regard to surgery he discussed the limits of operability, the technic, methods of indirect surgical treatment (ligature of the vasa deferentia, castration, orchiectomy); radium and roentgen therapy, and surgical treatment combined with administration of stilbene.

Many others participated in the discussion of this subject. Bravetta of Milan treated 60 patients with cancer of the prostate with estrus-producing compounds for two and one-half years and obtained definite improvement in nearly all of them; he administered 5 mg. of the compound daily by the hypodermic route and continued this treatment for an indefinite time.

Berti Riboli of Genoa obtained encouraging results in 50 patients treated in several hospitals. Bonino of Turin obtained favorable results when castration was combined with the administration of estrus-producing compounds. Bruni of Naples obtained more favorable results in 20 patients with castration than with hormone therapy. Oberholtzer of Rome discussed the mechanism of action of the treatment of cancer of the prostate with stilbene; he concluded that at present it does not seem possible to confirm whether the drug acts as a hormone or as a chemical agent.

Establishment of a Blood Bank

The first Italian Blood and Plasma Bank has been organized in Turin following the scheme of those established in the United States. The bank will not be a substitute for the present Association of Voluntary Blood Donors but will partly support this association with the intention to perfect the blood transfusions and to make them more practical. The bank will put the products at the disposal of the physicians as follows: (*a*) whole blood, collected in a special citrated, anticoagulant solution; (*b*) human plasma, frozen or dried, and (*c*) modified globin, obtained from erythrocytes which have not been utilized during the preparation of plasma.

The classification of the blood will be warranted by the determination of the various blood groups and of the Rh factor.

Consulting Office on Genetics

The first Italian Consulting Office on Genetics has been established at the center for studies of human genetics of the University of Milan. The purpose of the consulting office is to assist physicians in evaluating data of the family history of patients with diagnostic, prognostic and therapeutic problems which sometimes can be solved only with the help of genetics. The consulting office will also give advice with regard to marriage. Counselors will be the director of the center for studies of human genetics at the university and specialists in the various branches of medicine as assistant physicians. The function of the consulting office will be purely consultative, with the exclusion of any diagnostic or therapeutic activity.

BUENOS AIRES

(From Our Regular Correspondent) Dec. 22, 1947.

The New Law for Argentine Universities

The government has proclaimed a new law for the universities, effective Jan. 1, 1948. For several months it had been projected and several times discussed in parliament and the daily press. According to the definition given, the universities are institutions for advanced teaching, the development of young students, the advancement of science and the development of the liberal professions. Their technical, teaching and scientific autonomy is guaranteed. Neither professors nor students are allowed to act directly or indirectly in politics or to intervene in situations which are foreign to their specific function.

An important change, in comparison with former rules, is that the rector of the university will not be designated by the government (executive power); he remains three years in charge. There is also a vice rector and a university council composed of the deans and vice deans of the different faculties. The rector must possess the highest title of the corresponding national faculty or be a titular professor or associate professor. His post is incompatible with any other public activity, except teaching in the same university, lecturing, research work and similar occupations. He receives 4,000 pesos per month. The vice rector substitutes for the rector if necessary or can be delegated by him for certain functions. He receives 500 pesos a month.

The university council has many functions: for instance, superior jurisdiction, control of the faculties and rules, creation of new faculties or institutes and the approval of candidates for a chair.

The faculties are led by a directing council composed of the dean and ten councilors elected by secret vote of the professors among themselves, viz. seven titular councilors (six plus the dean) and four associates. Another important change is that the dean of the faculty is not elected by the professors of the faculty (and the students) among themselves, but from a list of three names which the rector presents to the directing council of the faculty. He must be professor of the same faculty. He remains in charge for three years, and so do the ten councilors, who cannot be reelected for the following three year period. The councilors cannot occupy paid positions which are independent of the university. They cannot be designated during their mandate and for two years after their mandate has ended, for chairs, etc., created during their mandate. The dean receives 1,000 pesos a month for expenses of representation.

The professors are classified as titulars (those who occupy a chair), associates, extraordinary and honorary professors. The titular and associate professors are selected by competitive test between several candidates; with respect to the titulars a list of three names is submitted by the university to the executive who makes the designation. The associate professors must be approved by the university council. Also, persons who have not taught before can be elected if their scientific personality and work are approved; in such cases also the competitive test can be set aside under certain conditions. After four years of activity, associate professors must be confirmed as such by the university council. Every year one or two associate professors are designated as assistants of the titular professor. The extraordinary professor is designated according to his recognized reputation in his specialty, with special contract in each instance for a determinated period. He can also be of foreign nationality (the titular and associate professors may not). The retiring professor can be nominated honorary professor in recognition of his merits. The titular professors have a monthly remuneration of 1,800 pesos, which is increased 10 per cent every five years, and, if they are on a full time basis, of 3,500 pesos, which is increased 10 per cent every ten years. The associates receive 800 pesos per month if they are assistants, or 1,500 if full time.

The candidate for a university professorship begins with a period of adscription during which he has to do scientific work and teach under the direction of the titular. He takes a final examination. The next step is called complementary teaching, after which he will be authorized as lecturer, either by examination or by general competition. Everybody who has finished his university studies in a normal way and who follows his profession ten or more years and presents enough scientific work, papers, titles and the like, has the right to apply for permission to teach. If accepted, he receives the "venia docendi," i. e., permission to teach in regular and systematic form.

Every faculty has a so-called general "claustro" which includes all the titulars of the faculty plus one third as many associates, chosen by lot. Attendance at the meetings of the claustro is compulsory. It deals only with the annual report of the dean and the curriculum and plan of studies.

The student body is divided in regular and free students. Regular students must assist with the practical courses according to special prescriptions of each faculty (nothing is said about their compulsory assistance at theoretic lectures; this item had been foreseen in the original draft but had been suppressed by the senate of the parliament).

The students of each faculty elect, by lot, one representative for the directing council from among the ten best senior students. This delegate can express freely the opinion of the students he represents, but he has no vote in the decisions taken by the council.

A special organization for distributing fellowships among the regular students has been created (the "free" students cannot obtain them). There are two classes of fellowships, one for studying and one for stimulating. The first are for students of poor families; these fellows receive not only free tuition, books and so forth, but also financial aid.

To finance the expense of this new law there are two sources: the national budget and a new special tax of 2 per cent, which every employer has to pay on every salary or wages paid in Argentina, except those of domestic servants and payments made by the national, provincial and municipal authorities.

To coordinate the work of the universities and to advise the national government, a National University Council is created, comprising the rectors of all Argentine universities and presided over by the Minister for Justice and Public Instruction.

One item of the law has not yet been promulgated by the president of the republic, namely, that which determines the incompatibility of the function of a titular professor with other public activities. This has been done owing to the protest of a number of persons interested in this point, who explained the difficulties which this rule may create.

Brief Items

The First Argentine Congress of Bronchoesophagology was held, under the honorary chairmanship of Professor Chevalier L. Jackson of Philadelphia, who gave courses in Buenos Aires and in Córdoba at the invitation of the corresponding Argentine societies. Argentine chairman of the meeting was Dr. Alvaro Bence. The subjects treated were: diagnostic and therapeutic indications of bronchology and esophagology, hospital services of oral endoscopy and oral endoscopy in children.

Institute for Scientific Investigation

Last November in Buenos Aires the Institute for Biochemical Investigations (Foundation Campomar) was inaugurated. The institute was donated and is maintained by Mr. Jaime Campomar. It is a sister institute to that of Dr. B. A. Houssay, situated beside it and in interdependence with it. Its director, Dr. Luis F Leloir, is a pupil of Houssay, and so are also the collaborators of the new institute. It consists of four laboratories which are specially equipped for metabolic research and enzyme studies.

Orthopedic Traction on the Skeleton

Dr. Carlos E. Ottolenghi, associate professor of orthopedic surgery, Faculty of Medicine of Buenos Aires, has completed an investigation for which he has just received the prize which is annually awarded by the Argentine Society of Surgeons. Ottolenghi studied in dogs and rabbits, as well as clinically, the tolerance of the organism for iron wire and traction, particularly the reactions of the tissues, the histopathologic changes, the technic of application and the resistance of different kinds which the wire has to overcome, the direction of the traction powers and the application of wire in children. Infection and exaggerated traction are the most important dangers of traction on the skeleton. He prefers to put the wires in tension according to Kirschner's technic without using the nails of Steinmann.

TURKEY

(From Our Regular Correspondent)

Ankara, Jan. 30, 1948.

Saliva Stones

A colonel at the military academy, Gülhane Hospital, Professor Dr. Necdet Albay encountered 3 cases of saliva stones and has published his observations. The first case was in a young man aged 22, who twenty days prior to admission to the hospital noticed in the lower jaw a swelling the size of a walnut. During meals the swelling and the pain increased and extended to the root of the tongue. As the roentgen examination did not show the stone, it was decided to excise the gland, which was done with the patient under local anesthesia. There was a small purulent pocket beneath the lower lobe and surrounded by extensive infiltration. Embedded in the gland was a stone the size of a pea. The gland was removed; the patient recovered and was discharged after fifteen days.

The second case concerned a woman, aged 36, who for three weeks had felt a swelling accompanied by pain in the lower jaw on the right side. One week prior to admission hospital the pain increased and there was swelling toward the tongue. The pain became unbearable. On roentgen examination the shadow of a small stone was visible. With the patient under local anesthesia the excision was performed, releasing an abundance of pus. After ten days' treatment the patient was discharged as cured.

The third case occurred in a man aged 45, under whose tongue there was a suppurative process from which, from time to time, small stones were cast out, under the lower jaw on the left side. A swelling which became especially painful during meals had developed three months' previously. The patient, who was advised to stay at the hospital, promised to return the next day but failed to do so.

Of the two stones excised, 1 weighed 5 Gm., the other 8 Gm. A saliva stone weighing 93 Gm. has been excised by Throwgood. One of the two stones was yellowish, the other gray; one soft, one hard. Their composition was calcium carbonate 10 per cent, calcium phosphate 30 per cent and organic matter 10 per cent. Saliva stones are found either in the salivary glands or in the salivary canal. Experiments have shown that the p_H of saliva during the day is 6.5 to 6.9 and during the night is slightly lower. According to Brickman, the average p_H is from 5 to 8. Experiments made on 50 patients at the department of jaw surgery at the Gülhane Hospital in Ankara showed that the p_H of the saliva of 2 patients was 6; of 10, 6.5; of 7, 7.1; of 15, 7.5, and of 16, 8.

Saliva stones are rare in Turkey. It is possible that afflicted persons fail to consult a physician; however, there is little concerning saliva stones in Turkish medical literature.

Anniversary of Child Welfare Society

The Turkish Child Welfare Society, a gift of the republican government, has since its incorporation in 1923 been directed by Dr. Fuad Umay, M.P. There are branches in all parts of the country with headquarters in Ankara, to which donations, gifts and contributions of the 100,000 members are forwarded. The society derives its income from various sources. During child welfare week, which begins on April 23, the national holiday, and all other national and religious holidays, a small tax stamp is affixed to all outgoing mail and special cable forms are issued; bazaars and children's balls are given at certain seasons in a number of towns; there are voluntary contributions in the form of special stamps to be affixed to documents or transportation tickets; rent is obtained from buildings in Istanbul and Ankara owned by the society; funds are allocated from the government budget, from municipalities and private administrations; the organization of lotteries, plays, national dances, sports and races also augments the income. The society receives in addition contributions from abroad, especially from Turkish people living in the United States, who donate considerable sums every year.

The one hundred bed modern children's home for foundlings, orphans and other poor children is directed by pediatricians, and a school for the training of children's nurses is attached to the home. The society has also established free dental clinics for children; dispensaries, policlinics, soup kitchens and bathhouses for children and their mothers, and swimming pools for the use of children only.

Established and operated by the society are twenty-eight children's homes, twenty-one nursery schools, three maternity homes, thirty-six soup kitchens, six homes for poor pupils, nine bathhouses and swimming pools, forty-four dispensaries for mother and children, fifteen free milk dispensaries for babies' formulas, three dental clinics, free school lunch programs in ninety-nine schools, five children's libraries and sixty-six modern playgrounds.

Persons who have promoted the work of the society are presented with a bronze, silver or gold medal. Twins, triplets and quadruplets born to poor mothers are taken under the protection of the society. The mother is given a monetary reward, is provided with free milk and is sometimes presented with a milch cow.

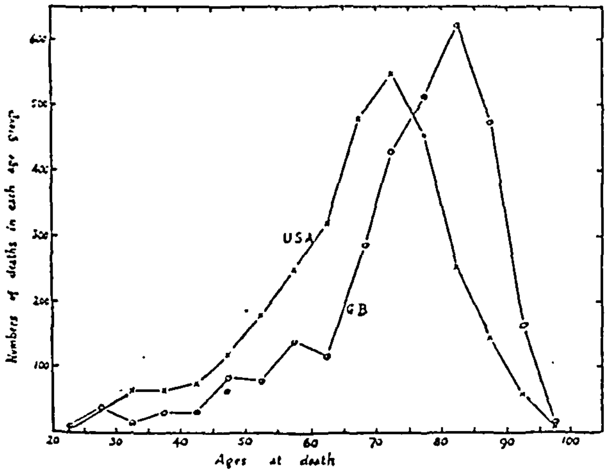
Correspondence

COMPARISON OF DEATHS AMONG PHYSICIANS IN UNITED STATES AND GREAT BRITAIN

To the Editor:—The Analysis of deaths among physicians in the United States for the year 1947 (The Journal, January 24, p. 252) prompted a similar analysis of British figures. We had in mind the possible effects of the more even tenor of English life and the effects of the "austerity" on those inclined to excess weight with its attendant dangers and diseases.

The accompanying graph was constructed from an analysis of the 3,040 deaths during 1947 referred to in The Journal and from 391 deaths of British physicians culled from the obituary columns of the *Lancet* from July 1945 to December 1947. In only about half of the British physicians listed were the ages at death stated, and it is possible that this group is not representative.

For comparison the British figures were recalculated to show what they would have been had the total deaths been raised from 391 to 3,040. For whatever it may be worth, the graph shows that the British have, in proportion, two or three times as many physicians reach the age of 80 and over as do the United States. The peak of the British curve is about one decade higher than the American. Some comments from readers might be interesting.



Comparison of ages at death of physicians of the United States and of Great Britain.

Phebe Hoff, M.A., and Frank L. Apperly, M.D.
Richmond, Va.

INTRAOCULAR FOREIGN BODIES

To the Editor:—In the Dec. 6, 1947 issue of The Journal of the American Medical Association, page 894, Dr. George Haik makes an excellent contribution in his article on "Intraocular Foreign Bodies." Due to education and safety devices, fortunately, intraocular foreign bodies are not as frequently encountered as they were during the early part of the century. The late Dr. George Sloan Dixon of the New York Eye and Ear Infirmary told me that when he was pioneering in roentgen localization there were always several patients to be examined roentgenologically each day. Now weeks go by without even 1 case being seen. With the decrease in cases has come need of articles like that of Dr. Haik to make up for lessened experience among eye surgeons.

Dr. Haik emphasizes need of accurate localization of intraocular foreign bodies. Until the advent of the Berman and Carney locators this had to be done only by roentgen ray. (The Carney locator I have never seen.) The various technics of roentgen localization take special skill, which unfortunately is not available in most communities. The Berman locator and presumably the Carney locator can be used by a surgical team without aid from another department of a hospital or a different set of specialists. All the work can be done in an operating room. These locators are available immediately for emergencies, day or night, Sundays, holidays and week days. One does not have to summon the roentgenologic group, wait for plates to dry and for interpretation and charting. With the Berman locator the surgeon can get instant pinpoint localization.

Probably Dr. Haik was not aware that the Berman locator can detect nonmagnetic as well as magnetic foreign bodies. In addition in magnetic foreign bodies it furnishes valuable information ahead of time of how much magnetic force will be needed to extract a magnetic foreign body. Dr. Haik calls attention to the dangers of using too much force, and he correctly warns against diagnostic trials with the magnetic extractor.

It seemed to me that Dr. Haik overemphasized delay in removing intraocular foreign bodies. During the past three years I have been successful in removing intraocular foreign bodies within an hour after hospital admission. Localization was performed by the Berman locator in my office before the patient was sent to the hospital, and extraction was performed with the aid of another Berman locator in the operating room. Roentgen films were often not taken for a week or ten days and were then taken only to have a tangible record. I think all patients with intraocular foreign bodies require emergency treatment, and now with the aid of the Berman locator they can receive the attention they deserve.

Loren Guy, M.D., New York.

LABELING PROTEIN PREPARATIONS

To the Editor:—A curious oversight appears to be common in biochemical and medical literature and in the trade customs of labeling protein preparations; it arises from considering the protein portion of a nutritional preparation to yield protein for both tissue building and energy production. For example, a unit of a nutritional product containing 50 Gm. of protein is considered to provide 50 Gm. of protein and 200 calories (4 calories per gram of protein). This may be misleading, for if all the protein is efficiently used to form tissue protein, no calories can be provided by it; conversely, if each gram of the protein is to produce 4 calories, the protein must be completely burned and thus can form no tissue protein. The number of calories actually furnished by 1 Gm. of protein will range from 0 to 4; the more efficiently the protein of the product is utilized to synthesize tissue protein, the fewer calories will be furnished.

Of nine protein or protein hydrolysate preparations selected at random, seven were found to make claims for caloric equivalents, all apparently based on the assumption that each gram of protein yields approximately 4 calories. Since all these preparations are intended to supply their protein component for protein anabolism, it seems inconsistent to imply that the same protein is also available for calorie production.

A second, though less important, assumption is that protein hydrolysates are equal to protein in caloric value, but the approximation involved here is in general acceptable.

It is suggested that protein preparations intended to provide protein for tissue-protein synthesis should not be claimed to have caloric value except as the latter is provided by added constituents of the type actually burned in the body. Ordinarily, these constituents will be carbohydrate and fat only.

Arthur Cherkin,
Research Department, Don Baxter, Inc.,
Glendale, Calif.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Food and Drug Acts: Evidence of Misbranding of Device.—The United States filed a libel against sixteen Sinuothermic machines, owned or manufactured by the claimant, on the ground that they were misbranded when shipped in interstate commerce. The misbranding was alleged to have consisted of printed matter accompanying them which represented that the machines had a therapeutic value in the diagnosis and treatment of stated diseases of man, whereas the devices were not effective for such purposes. From a judgment of condemnation and destruction, the claimant appealed to the circuit court of appeals, fifth circuit.

The federal law prohibits the introduction into and the receipt in interstate commerce of any food, drug, device or cosmetic that is adulterated or misbranded and provides for seizure and condemnation of such. It is not denied that these machines were devices within the act. A drug or device shall be deemed to be misbranded, within the federal act, if its labeling is false or misleading in any particular. The term "labeling" means all labels and other written, printed or graphic matter on any article or any of its containers or wrappers or accompanying such article. The last three words, said the court of appeals, are critical here. They make the term "labeling" broader than "label," which includes only what is displayed on the immediate container of an article. How much broader? The sixteen devices in question were shipped in several consignments from a place in Florida to a designated place in Ohio. The first three shipments went forward and were received by the proper party and put to work in his medical practice several weeks before any leaflets were sent. They did not accompany any of the devices while they were in interstate commerce. The last of the shipments went forward three weeks after the leaflets and was not accompanied by them. Accompany, said the court, means to go along with. In a criminal and forfeiture statute the meaning cannot be stretched. Furthermore, it may be doubted, said the court, that the printed matter is in its nature a labeling for the machines. It looks like a small newspaper, entitled "The Road to Health, by Dr. Fred Urbeteit. Every subject pertaining to Health, Doctoring and Nursing is being taught at the College of Sinuothermic Institute, Inc., 307 West Euclid Ave., Tampa, Florida." To the left of this heading is a picture of Dr. Fred Urbeteit, president of Sinuothermic Institute, Inc., and to the right an attractive picture of the institute and its grounds. Fifteen columns of fine print are below, consisting of testimonials and case histories of patients who had been treated at the institute by Dr. Urbeteit, with unstinted praise of both. The Sinuothermic machine is mentioned and praised as an instrument of diagnosis and treatment, but there is no description or picture of the machine, no explanation of its operation and no suggestion that it is for sale. The whole thing, said the court of appeals, appears to be an advertisement for the institute and Dr Urbeteit, rather than something to accompany machines. Whether we ought to hold it a labeling of these machines if shipped simultaneously with them, the court continued, may be doubted. But if it could be called labeling, it is not proved by the present skimpy evidence that it accompanied the machines or any one of them while they were in interstate commerce.

The claimant vigorously contended that all he had said in "The Road to Health" was true. He offered in his claim, since no employee of the United States and only a few practitioners whom he had instructed, had any actual knowledge of his machine, to conduct a series of tests of it in cooperation with practitioners of medicine, osteopathy, chiropractic and naturopathy approved by the court, preferably on persons previously treated by medical practitioners without success, they to be examined before and after the test by physicians appointed by the court during such period as the court should fix, the physicians' determination of the results to be evidence in the case. This was not done. Dr. Urbeteit at least seems convinced of the efficacy of his machine, said the court of appeals. He testified in detail as to each case mentioned in "The Road to Health." He had present 30 of his patients, whom he offered as witnesses to the benefits they had received, many of them being those mentioned in "The Road to Health." The trial judge refused to hear them on the ground that, being laymen, they could not testify as to what was the matter with them and consequently could not say what they were relieved from, and that the diagnoses testified to by Dr. Urbeteit could not be accepted because he rested them on the use of his machine which the government's witnesses, who were men of high standing in medicine and in the electrical arts, had testified could not do what Dr. Urbeteit claimed. These rulings, said the court of appeals, were error. One was based on the idea that Dr. Urbeteit had made his diagnoses solely on the indications of the machine. But his testimony as a whole was that he used all known methods of diagnosis, that the machine did not indicate any particular disease but only located the spot where the abnormal tissue was, and that it was then a matter of judgment as to what the disease was. He only claimed the machine to be an aid in diagnosing. The patients themselves, said the court, could certainly know whether their external symptoms abated and their pains ceased. Urbeteit, being a licensed doctor of some twenty years' practice, could express expert opinions. The judge might, continued the circuit court of appeals, after hearing all the evidence, prefer the expert opinions of the government witnesses to those of Dr. Urbeteit, even as against the facts to which he and his witnesses might swear, but the judge should have heard all the competent testimony before making up his mind. The most eminent physicians and scientists have in the past erred in their opinions, and opinions generally must yield to well proved contrary facts. The case, the court concluded, ought to have been more fully tried. Accordingly, the judgment in favor of the government was eversed and the cause was remanded for further proceedings.—*Urbeteit v. United States, 164 F. (2d) 245 (1947).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARD OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL March 6, page 713.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I & II.* Various centers, June 21-23. Final date for filing application is May 22. *Part II.* Various centers, April 26-27. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Oral.* New York, April 12-15 Sec., Dr. Paul M Wood, 745 Fifth Ave., New York 22.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Oct. 18. Final date for filing application is June 1. Asst. Sec-Treas., Dr. W. A. Werrell. 1 West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* June 1949 Final date for filing application is Feb. 1, 1949. Sec., Dr. W. J. German. 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Oral. All Groups. Part II.* Washington, D. C., May 16-22. Final date for assignment is April 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY. *Oral.* Baltimore, May 20. Chicago, Oct. 6. *Written.* Various centers, Jan. 1949 Final date for filing application is July 1, 1948. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part II.* Chicago, January 1949. Final date for filing application is August 15. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

AMERICAN BOARD OF OTOLARYNGOLOGY. *Oral.* Chicago, June 15-19. Sec., D. M. Lierle, University Hospital, Iowa City, Iowa.

AMERICAN BOARD OF PATHOLOGY. Philadelphia, March 8-10 Final date for filing application is March 1 Sec., Dr. Robert A. Moore, 507 Euclid Ave., St Louis, Mo.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Cleveland, April 23-25. Chicago, June 25-27. Seattle, Sept. 10-12. Atlantic City, Nov. 17-19. *Written.* March 12 July 30. Sec., Miss Lea Leonard, 718 Royal Union Bldg., Des Moines, Ia.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in April and November of each year in the home town of applicants. Sec., Dr Robert H. Ivy, 1930 Chestnut St., Philadelphia.

AMERICAN BOARD OF SURGERY: *Written. Part I.* October. Final date for filing application is July 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American J. Obstetrics and Gynecology, St. Louis

54:905-1094 (Dec.) 1947. Partial Index

*Precursors of Corpus Carcinoma Estrogens and Adenomatous Hyperplasia. S. B. Gusberg.—p. 905.
*Fatal Eclampsia: Clinical and Anatomic Correlative Study. G. T. C. Way.—p. 928.
Elevated Blood Pressure in Pregnancy: Report of 1,800 Cases. W. F. Dillon and H. E. Schmitz.—p. 948.
*Anticoagulation Therapy with Heparin/Pitkin Menstruum in Thrombo-Embolic Disease Complicating Puerperium and Gynecologic Surgery. H. J. Greene and L. Loewe.—p. 958.
Cancer; Evolutionary Reversion in Cell Metabolism. W. B. Ayre and J. E. Ayre.—p. 970.
*Cervical Cancer in Young Girls. H. Speert.—p. 982.
Face Presentation. S. J. Rudolph Jr.—p. 987.
Relation of Mothers' Diets to Status of Their Infants at Birth and in Infancy. L. W. Sontag and Janet Wines.—p. 994.
Premature Survival Index and Conduct of Premature Labor. A. L. Dippel, H. W. Johnson and J. L. Cornelison.—p. 1004.
Late Dystocia Treated by Norton Extraperitoneal Cesarean Section. W. Levine and S. Weiner.—p. 1013.
Adenocarcinoma Arising in Endometrial Cyst of Ovary. A. Miller, D. M. Grayzel, M. Schiffer and P. Rosenblatt.—p. 1022.
Immediate Postpartum Period as Fourth Stage of Labor. C. T. Javert.—p. 1028.
Premature Quadruplets. T. S. Bowyer and G. W. Corner.—p. 1033.
Nonfatal Pulmonary Embolism by Amniotic Fluid Contents with Report of Possible Case. L. M. Seltzer and W. Schuman.—p. 1038.
Erythroblastosis Fetalis Due to Intragroup Rh Incompatibility. L. H. Tisdall, M. R. Marsh and E. T. Hartnett.—p. 1047.
Erythroblastosis Fetalis in Infant of Primigravida. H. C. Spalding. —p. 1052.
Travel in Pregnancy. W. B. Beach Jr.—p. 1054.

Precursors of Corpus Carcinoma.—Gusberg reports on the endocrine-tumor relationship in four groups. The endometrial hyperplasia produced by granulosa cell tumors and the accumulating evidence of association of estrogen-producing ovarian tumors with carcinoma of the corpus uteri, together with data obtained from study of the pattern of adenomatous hyperplasia produced in such cases, are suggestive of an estrogen-cancer relationship. The second group studied concerned human endometrium with advanced degree of hyperplasia produced by prolonged administration of estrogens. None of these endometriums could be called malignant, but all appeared very active, and some varied sufficiently from the well known pattern of cystic glandular hyperplasia so as to convince both pathologist and clinician that the patient's interests would best be served by prophylactic hysterectomy. With regard to the third group, adenocarcinoma of the human endometrium following prolonged administration of estrogens, it appears that in spite of the common use of hormonal therapy for menopausal symptoms in recent years there have been few reports of resultant uterine carcinoma. The author presents the histories of 5 patients in whom adenocarcinoma of the corpus uteri developed after prolonged administration of estrogens, and 3 carcinomas of the corpus and an ovarian adenocarcinoma the development of which may have been accelerated by administration of estrogens and their histologic pattern modified. Studies in the fourth group concerned endometrial patterns in patients with recurrent episodes of "functional bleeding." The well defined histologic pattern recurring in these related groups of tissues suggests that endogenous or exogenous estrogens play a role in the development of carcinoma of the corpus uteri.

Fatal Eclampsia.—Way reviews 33 fatal cases of eclampsia which were subjected to necropsy. Analysis of the clinical histories has been presented in relation to age, parity, race, prenatal care, family history, previous medical and obstetric history, symptoms, physical findings on admission, duration of pregnancy, chemistry of the blood and duration of hospital stay prior to death. Hepatic lesions consisted of focal fibrinoid necrosis, with or without hemorrhage. Renal lesions have been divided into three stages which represent steps in the development of permanent renal change: Stage 1, with glomerular but without arteriolar alterations, was typical in 33 per cent of the cases; stage 2, characterized by thickening of the arteriolar wall, was observed in 48 per cent of the cases, and stage 3, with lesions similar to arteriolonephrosclerosis, characterized 18 per cent of the cases. Eleven patients had hemorrhage and necrosis in the adrenal glands. Additional lesions found were: pneumonia; focal necrosis of the myocardium, pancreas and brain; acute endometritis; cerebral hemorrhage; cystitis; acute mastitis, and cerebral arteritis and *arteriolitis. An attempt is made to correlate the observed* lesions with some current hypotheses concerning the pathogenesis of eclampsia.

Anticoagulation Therapy in Puerperium and Gynecologic Surgery.—Greene and Loewe say that during the past three years 251 patients with venous thromboembolic disease received heparin subcutaneously in the Pitkin menstruum (gelatin 15 to 30 per cent, dextrose 5 to 12 per cent, glacial acetic acid 0.5 per cent, and distilled water) with gratifying results. Fifty-three of these 251 subjects were obstetric or gynecologic patients. The treatment of venous thromboembolic disease with subcutaneous heparin in the Pitkin menstruum was attended with lessened morbidity, prompt and rapid clinical improvement, and little or no residual edema. The causative factors responsible for the one treatment failure have been analyzed. Treatment failures with other methods responded with recovery after the routine administration of the heparin/Pitkin menstruum preparation. The subcutaneous administration of heparin in the Pitkin menstruum is recommended as a safe, simple, practical and effective method for anticoagulation therapy in thromboembolic disease complicating the puerperium and gynecologic surgery.

Cervical Cancer in Young Girls.—Speert presents 2 cases of cervical carcinoma in girls aged 12 and 19 years, respectively. Case 1 is the seventh reported instance of carcinoma of the cervix in girls age 12 or under. In contrast to the preponderance of epidermoid cervical cancer in adult women, adenocarcinoma is the commonest type of cervical carcinoma in young girls. The poor prognosis associated with cervical cancer in young girls in the past may be the result of inadequate treatment.

American Journal of Ophthalmology, Cincinnati

30:1345-1484 (Nov.) 1947

Vitreous Infections and Streptomycin: Experimental Studies. I. H. Leopold, Marjorie Wiley and R. Dennis.—p. 1345.
*Pigmentation of Palpebral Conjunctiva Resulting from Mascara. A. B. Reese.—p. 1352.
Acute Reversible Cataract in Chicken Due to Various Nitrocompounds. W. Buschke.—p. 1356.
Virus Studies in Lymphomatoid Diseases of Ocular Adnexa. A. E. Braley and Rose C. Alexander.—p. 1369.
Cyanide Inhibition of Corneal Respiration. W. A. Robbie, P. J. Leinfelder and T. D. Duane.—p. 1381.
Visual Effects of Tridione. Louise L. Sloan and Anita P. Gilger. —p. 1387.
Effects of Di-Isopropyl Fluorophosphate Vapor on Eye. W. H. Aldridge, H. Davson, E. B. Dunphy and G. I. Uhde.—p. 1405.
Some Methods of Lid Repair and Reconstruction: IV. Total Reconstruction of Upper Lid. S. A. Fox.—p. 1412.
Technical Methods for 1/2,000 Field. M. Chamlin.—p. 1415.
Clinical Use of Di-Isopropyl Fluorophosphate (D.F.P.) in Chronic Glaucoma. W. G. Marr.—p. 1423.

Mascara Causing Pigmentation of Palpebral Conjunctiva.—Reese observed a granular, stippled pigmentation under the palpebral conjunctiva of both upper lids of a middle-aged woman. *The nature of the lesion was not recognized at first.* The condition showed no appreciable change after ten months. The pigmentation was situated at each extremity of the tarsus on a level with its upper border. It was located under rather than in the conjunctiva. Over the pigmented area there was a folliculosis and slight congestion. The condition was identical in both lids. After two and one-half years, there had been some extension of the pigmentation. It could be seen as a narrow line along the upper border of the tarsus, fading out in the central portion. In addition, a mottled, deep-seated, bluish black pigmentation could be seen under the conjunctiva of the lower lid. During the period this case has been followed, 6 additional cases have been observed. The symptoms referable to the condition are mild. There may be burning, redness and itching of the eyes, sleepiness, roughness and swelling of the lids, and desire to blink the eyes excessively. All the patients were women, 5 of whom admitted the constant use of mascara. It is concluded that the pigmentation of the palpebral conjunctiva results from the use of mascara or allied pigment-bearing cosmetics but that there is some factor peculiar to the individual determining its occurrence, because this pigmentation does not develop in everyone who uses mascara.

American Journal of Physiology, Baltimore

151:1-238 (Nov.) 1947. Partial Index

Regional Intrathoracic Pressures and Their Bearing on Calculation of Effective Venous Pressures. C. J. Wiggers, M. N. Levy and G. Graham.—p. 1.
Studies of Venous Drainage of Heart. D. E. Gregg and R. E. Shipley.—p. 13.
Combination of Evans Blue with Plasma Protein: Its Significance in Capillary Permeability Studies, Blood Dye Disappearance Curves, and Its Use as Protein Tag. H. H. LeVeen and W. H. Fishman.—p. 26.
Effects of Muscle Trauma and of Hemorrhage on Cardiac Output of Dog. W. S. Root, W. W. Walcott and M. I. Gregersen.—p. 34.
Measurement of Cardiac Output by a Continuously Recording Conductivity Method. H. L. White.—p. 45.
Russell Viper Venom as Means for Following Anticoagulant Action of Heparin. E. J. De Beer.—p. 58.
Components of Prothrombin Complex. A. J. Quick.—p. 63.
Nitrogen Content of Femoral Arterial and Venous Blood in Anesthetized Dogs Denitrogenated by Continuous Inhalation of 99.6 per Cent Oxygen. L. Karel and R. E. Weston.—p. 71.
Effect of Thymectomy, Hyperthyroidism and Hypothyroidism on Neuromuscular Atrophy and Regeneration. R. Diaz-Guerrero, J. D. Thomson and H. M. Hines.—p. 91.
Thiouracil, Basal Metabolism and Specific Dynamic Action. Dulal Pada Sadhu and S. Brody.—p. 130.
Relaxation of Pelvic Ligaments in Guinea-Pigs by Estrogens and Prostigmine. F. E. Emery and A. H. Lawton.—p. 134.
Redistribution of Potassium, Sodium and Water in Burns and Trauma, and Its Relation to the Phenomena of Shock. C. L. Fox Jr. and H. Baer.—p. 155.
Effect of Pitressin on Urinary Excretion of Chloride and Water in Human. J. M. Little, S. L. Wallace, E. C. Whatley and G. A. Anderson.—p. 174.
Effect of Ureteral Ligation, Phloridzin and Mercury Bichloride on Glucogenic Function of Kidney. R. M. Reinecke, G. G. Rudolph and M. J. Bryson.—p. 198.
Renal Clearance of Essential Amino Acids: Their Competition for Reabsorption by Renal Tubules. K. H. Beyer, L. D. Wright, Helen R. Skeggs and others.—p. 202.

American Practitioner, Philadelphia

2:215-286 (Dec.) 1947

Treatment of Coronary Artery Disease. J. M. Askey.—p. 215.
Present Status of Diagnosis and Treatment in Peptic Ulcer Problem. A. X. Rossien.—p. 223.
Principles in the Use of Diuretics. A. J. Merrill.—p. 234.
Treatment of Itching Dermatoses with Antihistaminic Drugs with Particular Reference to Pyribenzamine. R. L. Baer, M. B. Sulzberger and V. H. Witten.—p. 237.
Diagnosis and Differential Diagnosis of Sprue. J. Preuss.—p. 241.
*Serum Concentrations of Penicillin Following Administration of Crystalline Penicillin G in Peanut Oil and Beeswax. W. L. Hewitt.—p. 247.
Treatment of Acute Infections of Nervous System. S. F. Gilpin Jr.—p. 253.
Adult Hypothyroidism: Observations Based on Study of 151 Cases, with Detailed Reports of 2 Typical Cases. N. Burnstein.—p. 257.
Treatment of Esophageal Obstruction. J. R. Verbrycke Jr.—p. 263.
Medical Control of Diabetes in Surgical Patient. W. W. Shapiro and H. O. Fenske.—p. 269.

Serum Concentrations of Penicillin.—Hewitt presents pharmacologic data concerning absorption of sodium and potassium salts of crystalline penicillin G suspended in a mixture of peanut oil and beeswax. Most of the subjects studied were normal postpartum women or young adults convalescing from various types of acute illness. Administration of 300,000 units of crystalline sodium penicillin G in peanut oil and beeswax produced demonstrable concentrations of penicillin in the serum at twelve hours after administration in practically all cases and at twenty-four hours after administration in 70 per cent of cases. A single injection of 600,000 units of crystalline sodium penicillin G in peanut oil and beeswax produced assayable concentrations of penicillin in the serum twenty-four hours after administration in 86 per cent of cases. Equal division of a given dosage of penicillin in peanut oil and beeswax between two sites and simultaneous injection produced higher maximum levels during the first eight hours after administration but resulted in a shorter duration of assayable concentrations of penicillin in the serum. The volume of peanut oil and beeswax in which a given dosage of penicillin was administered did not affect appreciably the height or duration of the serum concentration. Division of a daily dose of penicillin into two injections given at twelve hour intervals rather than in a single daily injection resulted in maximum levels of lower magnitude, but insured a more uniform concentration of penicillin in the serum at all times than with the employment of a single daily dose.

Archives of Surgery, Chicago

55:637-758 (Dec.) 1947

*Control of Arterial Hemorrhage by Gelatin Sponge "Cuff" and Chromic Surgical Gut Sheath: New Experimental Method. H. P. Jenkins, E. Senz, H. Owen and R. Jampolis.—p. 637.
Orthopedic Operative Procedures Allowing Early Motion. F. E. Stinchfield.—p. 650.
Interosseous Wiring in Treatment of Fractures of Mandible. S. Gordon.—p. 660.
*Chemotherapy in Gas Gangrene: Experimental Study. W. A. Altemeier, W. L. Furste and W. R. Culbertson.—p. 668.
Osteochondrosarcoma of Sternum: Use of Tantalum Plate as Prosthesis. R. A. Griswold.—p. 681.
Hernial Repair Using Cooper's Ligament: Follow-Up Studies on 367 Operations. H. N. Harkins and R. H. Schug.—p. 689.
Effect of Distention of Biliary Tract on Electrocardiogram: Experimental Study. G. B. Hodge, A. L. Messer and H. Hill.—p. 710.
*Treatment of Postoperative Swelling of Arm Following Mastectomy: Preliminary Report. H. A. Hanelin, J. M. Williams, S. M. Wolffson and E. D. Wernick.—p. 723.
Neurovascular Syndrome of Arm Associated with Hypertrophied Subclavius Muscle: Report of Case, Including Operative Treatment. E. E. Clifton.—p. 732.
Precautionary Administration of Penicillin in Surgical Procedures on Bones and Joints. J. Buchman and J. E. Blair.—p. 743.

Control of Arterial Hemorrhage.—Jenkins and his associates attempted to control arterial hemorrhage with the gelatin sponge patch. All of the 22 dogs on which the authors made their experiments survived the immediate postoperative period. In 5 animals in which the gelatin sponge "cuff" alone was used to control hemorrhage from a wound of the aorta, a blowout occurred in 2 and caused death from massive retroperitoneal hemorrhage. The other animals in this series died on the second, third and sixth days after operation from distemper and pneumonia. There was no evidence of secondary hemorrhage in these animals, and the lumen of the vessel was found to be patent. The gelatin sponge cuff was rather badly fragmented, especially where the sponge was held by sutures. In the 16 animals in which the gelatin sponge "cuff" was supported by a sheath of chromic surgical gut there was only one blowout from the arterial wound. Six animals died from distemper and pneumonia, or were killed, on the third, the sixth, the ninth, the tenth, the eleventh and the fourteenth day. The sponge "cuff" and sheath were found to be intact, and the lumen of the vessel was patent and free from thrombosis. Eight animals survived for longer periods and were killed. The location of the wound in the vessel wall could be detected as a white scar which was apparently well healed over. The authors conclude that the gelatin sponge cuff and chromic surgical gut sheath offer a new method which may have a clinical application such as in the emergency treatment of wounds of major arteries, where one may not be in a position to do a careful arterial suture, and as a "secondary line of defense" against blowouts where arterial suture has been performed for a wound of the vessel or for anastomosis.

Chemotherapy in Gas Gangrene.—Altemeier and his co-workers produced infections with gas gangrene in animal experiments by inoculating bacterial cultures through hypodermic needles into healthy muscle. Infections produced under such conditions are different from those occurring in the clinic. This difference is largely responsible for the discrepancy between the obvious effectiveness of penicillin in gas gangrene experimentally produced and its questionable value in the type occurring clinically. A standardized experimental gas gangrene s now produced in the presence of crushed muscle and dirt, thus closely simulating conditions of the clinical type. Guinea pigs were chosen as the experimental animals, because of their pronounced susceptibility to infection with Clostridium welchii, which resembles that of human beings. Streptomycin was found to have no significant therapeutic value. Penicillin had a notable beneficial effect on the rate of development and the extensiveness of the infection as well as on the mortality. Since the effect of chemotherapy was greatly modified by the time of onset and the size of the dose, it would seem advisable to administer penicillin parenterally as soon as possible and in conjunction with surgical treatment in persons with gas gangrene or with wounds of the type which predisposes to its development and to continue using it thereafter in doses up to 1,000,000 units every three hours until the threat of this infection is over.

Postmastectomy Swelling of Arm.—Hanelin and his collaborators review observations on 25 patients with this disorder. Injection of 5 cc. of a 1 per cent solution of procaine hydrochloride into the stellate ganglion at periodic intervals will help to relieve symptoms referable to swelling of the arm following mastectomy. They employed this treatment in 21 of the 25 patients. Nineteen reported that they were benefited by the treatment. Of the 4 control patients who did not have a paravertebral block and who were observed for the same period (six months), none exhibited any improvement of the arm as compared with those who had it one or more times. Improvement of the circulation and the mobility of the involved arm subsequent to the paravertebral block are definite steps forward. The clinical improvement seems dependent to a great extent on the number of times paravertebral block is carried out; the more frequent the block, the more persistent and prolonged the response. The authors speculate on the advisability of doing sympathectomies for permanent reversal of this phlebospastic state.

Bulletin New York Academy of Medicine, New York

23:601-670 (Nov.) 1947

Psychosomatic Aspects of Allergic Disorders. E. Weiss.—p. 604.
Effect of Trauma and Strain on Production and Aggravation of Heart Disease. H. B. Sprague.—p. 631.
Extrarenal Sequel to Experimental Renal Hypertension. E. Ogden.—p. 643.
Treatment of Acute Anterior Poliomyelitis with Curare and Intensive Physical Therapy. N. S. Ransohoff.—p. 661.

Cincinnati Journal of Medicine

28:717-790 (Nov.) 1947

President's Inaugural Address. M. A. Blankenhorn.—p. 717.
Poliomyelitis in Cincinnati in 1946. J. A. Browning.—p. 724.
Homologous Serum Hepatitis: Clinical Implications. L. Schiff.—p. 736.

Homologous Serum Hepatitis.—Schiff emphasizes the importance of homologous serum jaundice in the differential diagnosis of jaundice, with particular respect to (1) metastatic neoplasm of the liver in patients who have had a recent resection of a malignant tumor, (2) stricture of the common duct (or sometimes stone) in patients who have had a recent operation on the biliary tract, usually a cholecystectomy and (3) neoplasm as a cause of painless jaundice in middle-aged or older persons. He cites histories to illustrate these three problems and lists the important data of the 6 cases presented. He and his 2 associates have seen 11 cases of serum jaundice in a little more than a year. They believe that many cases are overlooked because the condition is not usually considered in the differential diagnosis of jaundice. It is rather probable that needless operations have bee n performed on this account. It is essential that the physician keep homologous serum jaundice in mind whenever he sees a patient with icterus, regardless of the age of the patient, particularly if there is a history of an illness or an operation two to five months before the development of jaundice, even if the operation was performed on the biliary tract. His suspicions should be confirmed by recourse to the cephalin cholesterol flocculation and thymol turbidity tests.

Endocrinology, Springfield, Ill.

41:335-436 (Nov.) 1947. Partial Index

Effects of Hypophysectomy on Serum and Storage Iron in Adult Female Rats. R. C. Crafts and B. S. Walker.—p. 340.
Significance of Endocrine Glands in Ripening of Reticulocytes. B. G. Christensen and C. M. Plum.—p. 347.
Effects of Low Barometric Pressure on Chemical Composition of Adrenal Glands and Blood of Rats. J. Tepperman, Helen M. Tepperman, Barbara W. Patton and L. F. Nims.—p. 356.
Observations on Fluorescence, Birefringence and Histochemistry of Human Ovary During Menstrual Cycle. D. G. McCay and D. Robinson.—p. 378.
Inhibition of Ovulation in Rabbit by Adrenergic-Blocking Agent Dibenamine. C. H. Sawyer, J. E. Markee and W. H. Hollinshead.—p. 395.
Stabilization of Alcoholic Potassium Hydroxide in Colorimetric 17-Ketosteroid Determinations. Hildegard Wilson and Priscilla Carter.—p. 417.
Urethral Smear as an Indicator of Sex Hormone in Male Rabbits. H. Bern and M. Klein.—p. 422.
Sex and Diabetes. V. G. Foglia, N. Schuster and R. R. Rodriguez.—p. 428.

Journal-Lancet, Minneapolis

67:393-426 (Nov.) 1947

Indications for Bone Graft Fracture Treatment. R. E. Van Demark.—p. 393.
Cooper's Ligament Herniotomy. V. G. Borland and J. H. Graham.—p. 397.
*Megaloblastic Anemia in Infants. R. A. Aldrich and E. N. Nelson.—p. 399.
Combined Effect of Streptomycin and para-Aminosalicylic Acid on Experimental Tuberculosis in Mice. G. P. Youmans, Anne S. Youmans and R. R. Osborne.—p. 403.
Glycerite of Hydrogen Peroxide; II. Comparison of Its Bacteriotoxic Action with that of Solutions Containing Iodine. E. A. Brown, W. B. Krabek and Rita E. Skiffington.—p. 405.
Health Service in College Program. R. I. Canuteson.—p. 409.
General Practitioner in His Community. W. A. Wright.—p. 411.
Hyperparathyroidism. L. J. Peterson.—p. 414.

Megaloblastic Anemia in Infants.—According to Aldrich and Nelson there exists a syndrome of macrocytic anemia in infants which is not uncommon and which may easily be mistaken for pernicious anemia on the basis of blood morphology alone. Zuelzer and Ogden considered this anemia to be a distinct entity, and have suggested naming it megaloblastic anemia of infants. During an eight month period Aldrich and Nelson observed 6 infants ranging in age from 6 to 9 months who presented the typical syndrome of infantile megaloblastic anemia. Zuelzer and Ogden regarded this anemia as the result of deficiency of a hemopoietic factor derived from "folic acid" or purified liver extract. The disease differs from pernicious anemia in adults by the complete and lasting cure effected, no relapses having been observed. Whereas Zuelzer and Ogden considered infection and nutritional deficiency as possible etiologic factors, the experience of Aldrich and Nelson places emphasis on nutritional factors. The diets of their patients were uniform in composition and regularly deficient in ascorbic acid. The fact that megaloblastic anemia has developed with a wide variety of diets points to a combination of factors which may cause a deficiency in some hemopoietic principle. The discovery of 6 cases of infantile megaloblastic anemia in the short period of eight months in one clinic indicates the necessity of the physician's being on the alert to recognize this type of anemia in infants.

New England Journal of Medicine, Boston

237:931-968 (Dec. 18) 1947

Anesthesia with Intravenous Pentothal Sodium and Local Nerve Block in Gynecologic Surgery. J. C. McCann.—p. 931.
*Bronchiectasis: Treatment and Prevention. T. L. Badger.—p. 937.
*Esophageal Stricture Following Agranulocytosis Due to Sulfonamide Therapy: Report of Case. B. D. Bryan.—p. 941.
The Doctor and Vocational Rehabilitation for Civilians in Massachusetts. H. A. Dallas.—p. 943.
Cutaneous Medicine. J. G. Downing.—p. 945.
Calcific Aortic Stenosis.—p. 958.
Carcinoma of Thyroid Gland, Giant Cell Type.—p. 960.

Bronchiectasis.—Badger says that in 400 cases of bronchiectasis treated in the Massachusetts General Hospital, 59 per cent were unsuitable for surgical treatment and other observers say that about 50 per cent of patients with bronchiectasis are unsuitable for surgical treatment. The patients not suitable for surgical treatment are those with too much or too little bronchiectasis, those with limited cardiovascular reserve, those with limited pulmonary reserve because of associated emphysema, those with concurrent disease and those who will not submit to surgical treatment. Asymptomatic bronchiectasis does not require excision. About two thirds of all cases of bronchiectasis, with or without surgical treatment, require medical supervision and care. The medical management of bronchiectasis is directed toward mechanical drainage, control of infection, measures to improve the general health of the patient and the prevention of the condition before it occurs. The author regards postural drainage as the most important single mechanical procedure for emptying dependent bronchiectatic cavities of their secretions. Bronchoscopy remains an important procedure in bronchiectasis, and a necessary one in cases presented for surgical treatment. Chemotherapy in any form has so far provided no cure for bronchiectasis, but its judicious use in conjunction with mechanical drainage can make life bearable for many patients with severe bronchiectasis and can shorten the duration of the acute attacks of bronchitis and pneumonitis in milder cases. Improvement of general health requires good nutrition, rest, exercise and avoidance of lasting fatigue. Smoking may irritate a respiratory mucosa already inflamed with infection. Avoidance of exposure to cold and wet and sleeping in warm fresh air, rather than freezing cold drafty rooms, are of value to those who are sensitive to acute respiratory diseases. Prevention takes two major directions. The first is early diagnosis of bacterial pneumonias, with adequate chemotherapy. The second is reexpansion of atelectases that persist after pneumonias and acute respiratory infections, especially in children.

Esophageal Stricture Following Agranulocytosis.—Bryan reports the case of a woman, aged 38, in whom severe esophageal stenosis developed following agranulocytosis due to sulfonamide therapy. It is assumed that the same ulcerative process that caused the severe angina of the mouth caused ulcers in the esophagus and that, after the acute esophagitis had resolved, secondary cicatricial stenosis took place. Had the nature of the process taking place in the esophagus been appreciated sooner, bouginage at an earlier date might have prevented the resulting stenosis.

New Orleans Medical and Surgical Journal

100:*253-296* (Dec.) 1947

Airblock in the Newborn Period. G. W. Salmon.—p. 253.
Postmortem Observations in Twenty-Two Premature Infants. J. B. Arey. —p. 258.
Present Status of Poliomyelitis Problem. V. W. Lippard.—p. 262.
Intramedullary Infusions in Infants. M. Sutton and P. Kelley.—p. 266.
Human Infection with Virus of Equine Encephalomyelitis, Eastern Type, in Louisiana. K. C. Milner, G. P. Kelley and M. F. Shaffer.—p. 270.
Farber's Test in Diagnosis of Congenital Intestinal Atresia. N. C. Woody.—p. 273.
Some Recent Experiences with Amebiasis in Children. Maud Loeber and J. S. D'Antoni.—p. 276.
*Family Outbreak of Lead Poisoning from Storage Battery Casings. D. Spizer.—p. 278.

Family Outbreak of Lead Poisoning.—The outbreak reported by Spizer concerned a family of 6 who lived in a shack with a stove and an open fireplace. The father, aged 30, the mother, aged 24, and 4 children, twins, a boy and a girl aged 3, a girl aged 2 and a boy aged 1, had all been in good health previously. The child of 2 years became ill with symptoms of coryza and diarrhea, then had convulsions and died. The twins, aged 3, and the boy aged 1 also became ill. Because of the familial character of the outbreak and the history of diarrhea, the tentative diagnosis on admission was possible shigellosis. With the discovery of stippled red blood cells the diagnosis of lead poisoning came to the fore. Treatment directed at immobilizing the lead was begun promptly. The children were given a diet high in calcium with a high ratio of phosphorus to calcium. This included a quart of milk a day. Vitamin D was given in the form of calciferol, 5,000 units daily. The children also received calcium lactate and sodium citrate. The twins and the year old boy were discharged in apparent good health after fifteen and ten days, respectively. The parents, who remained free from lead poisoning, were queried regarding possible sources of lead poisoning, and it finally came to light that storage battery casings had been used for fuel in the room in which the children slept. The authors cite literature on this source of lead poisoning and stress that children are more susceptible to lead poisoning than are adults.

New York State Journal of Medicine, New York

47:2495-2622 (Dec. 1) 1947

Surgical Procedures for Carcinoma of Rectosigmoid and Rectum. C. G. Heyd.—p. 2543.
Complications of Abdominoperineal Resection of Rectum for Cancer. G. E. Binkley and M. R. Deddish.—p. 2547.
Abscesses of Deep Perirectal Spaces: Their Significance, Diagnosis and Treatment. H. Courtney.—p. 2552.
Clinical Evaluation, Treatment and Follow-Up of Newly Acquired Tuberculous Lesions. W. G. Childress.—p. 2560.
Useful Procedures in Early Diagnosis of Liver Damage Following Exposure to Chlorinated Hydrocarbons. R. Gurney.—p. 2566.
*Certain Reasons for Failure Following Disk Operations. E. Campbell and R. D. Whitfield.—p. 2569.
Psychotherapy of Obese Patient. H. B. Richardson.—p. 2574.
Clinical Approach to Office Management of Diabetes Mellitus. F. Williams.—p. 2579.
Health Supervision of Infant and Preschool Child. E. R. Schlesinger. —p. 2583.
Head Trauma and Hypersensitivity of Carotid Sinus. A. D. Ecker and I. L. Ershler.—p. 2587.
Parkinsonism—Is It Surgical Problem? J. Browder.—p. 2589.
Psychotherapy in General Practice. L. A. Osborn.—p. 2593.
Hyperthyroidism: Its Diagnosis and Medical or Surgical Treatment. J. C. McClintock and W. G. Armstrong.—p. 2597.

Failure Following Disk Operations.—Campbell and Whitfield reexamined a series of 122 patients operated on one to nine years previously for removal of a ruptured intervertebral disk. On the basis of absence of pain and ability to return to their original work, 68 patients were classified as having obtained "excellent" results. The results in 33 patients were termed "good" because they were doing lighter work without pain or the same work with some discomfort and in 21 patients "poor" since they had not returned to work and since they complained either of pain or of motor weakness which prevented their resuming their usual activities. It is of significance that 19 of these 21 patients came under Workmen's Compensation while 13 were considered before operations to be poor psychologic risks. In some instances, however, the reasons for failure were persistent neurologic defects, such as motor weakness and obvious pain. At least 3 or 4 of this group had recurrences, but they have refused further procedures thus far. It is noteworthy that certain persistent postoperative neurologic defects, such as absent or diminished knee or ankle jerks or persistent areas of hypesthesia or even anesthesia, do not necessarily preclude an "excellent" or "good" result. One should operate only on those patients who cannot get along with conservative treatment, and, if operation be performed, it should be carried out at a time when the patient is having pain or disability rather than when he is in a remission. It is also of great importance that the patient operated on is anxious both to get well and to work again.

North Carolina Medical Journal, Winston-Salem

8:687-750 (Nov.) 1947

Tuberculosis in the Southern States. J. L. Wilson.—p. 687.
Recent Advances in Chemotherapy of Tuberculosis. H. M. Riggins. —p. 694.
*Treatment of Tuberculosis with Streptomycin. H. S. Willis.—p. 698.
Streptomycin Therapy in Tuberculosis of Tracheo-Bronchial Tree: Preliminary Report. W. Woodruff, C. G. Merkel and A. Stranahan. —p. 702.
Artificial Pneumoperitoneum in North Carolina. N. L. Anderson. —p. 706.
Principles of Pneumoperitoneum Treatment of Pulmonary Tuberculosis. J. S. Hiatt Jr. and R. S. Mitchell.—p. 710.
Pulmonary Resection for Tuberculosis. J. A. Moore.—p. 715.
High Temperature in Pulmonary Tuberculosis with Eventual Arrest of Disease: Case Report. P. A. Turner.—p. 717.
Rehabilitation in Treatment of Tuberculosis. C. D. Thomas.—p. 720.
Sequelae of Pulmonary Tuberculosis. H. C. Sweany.—p. 722.
Development of Tuberculosis Case-Finding Program in North Carolina. H. F. Easom.—p. 730.

Streptomycin in Tuberculosis.—Willis reviews the present status of streptomycin in the treatment of tuberculosis. In spite of the fact that 1,500 cases have been studied to date, no one knows what the drug really does in tuberculosis of many parts of the body—particularly the lymphatic system, the bone, the eye, the genitourinary tract, the skin and many types of pulmonary tuberculosis. Streptomycin should be used in miliary tuberculosis, tuberculous meningitis, tuberculous sinuses and fistulas and certain cases of "early" tuberculosis known to have been present only a few days or weeks. The drug should not be used in the average case of chronic fibrous or cavitary tuberculosis. It should not be given to patients unless the functional capacity of the kidneys is known to be normal. It should always be reckoned as an adjunct to the accepted measures of bed rest and collapse therapy, and never as a substitute for these. Since it is given to patients with active disease, it is highly desirable that the patient be in a sanatorium during treatment.

Northwest Medicine, Seattle

46:921-999 (Dec.) 1947

Surgical Treatment of Hypertension. P. G. Flothow and H. J. MacKay.—p. 937.
Surgical Versus Medical Treatment of Hypertension. M. H. Evoy.—p. 943.
Present Status of Vagotomy in Surgical Treatment of Peptic Ulcer. H. N. Harkins.—p. 945.
Present Status of Male Hormone Therapy. H. Lisser.—p. 949.
Tumor Intussusception: Report of 2 Cases. J. M. Hoffman.—p. 950.
Inversion of Puerperal Uterus: Case Reports. R. M. McKeown and J. Rankin.—p. 953.

Oklahoma State Medical Assn. Jour., Oklahoma City

40:441-476 (Nov.) 1947

Infant Cyanosis and Nitrates. G. F. Mathews and E. P. Sellner.—p. 444.
*Spontaneous Subarachnoid Hemorrhage, Diagnosis, Management and Prognosis: Presentation of 2 Cases Resembling Dietl's Crisis and 6 Fatal Cases of Ruptured Intracranial Aneurysm (Two Luetic). A. H. Ungerman and L. Lowbeer.—p. 445.
General Principles Underlying X-Ray Diagnosis of Mediastinal Tumors. E. Lachman.—p. 451.
*Dolophine (Dimethylaminoheptanone-Methadon) in Control of Pain in *Bone and Joint Disorders. W. K. Ishmael and J. R. Stacy.*—p. 454.

40:477-516 (Dec.) 1947

Common Nasal Allergies, Diagnosis and Treatment. H. F. Vandever.—p. 480.
Treatment of Urinary Incontinence. B. A. Hayes.—p. 482.
Pericarditis Simulating Coronary Occlusion. W. W. Rucks Jr.—p. 485.
Ophthalmologic Problems in General Practice. J. P. Luton.—p. 488.

Subarachnoid Hemorrhage.—Ungerman and Lowbeer review the present status of knowledge on subarachnoid hemorrhage and stress that it is a symptom and not a disease entity. In the vast majority the hemorrhage is due to a rupture of an intracranial aneurysm, particularly of the circle of Willis; arteriosclerosis, septic or infectious embolism, trauma, massive cerebral hemorrhage, intraventricular hemorrhage, blood dyscrasias, vascular cerebral neoplasm, postoperative focal necrosis of cerebral vessels, complication of encephalography, shock therapy and artificial hyperpyrexia contribute a small number of cases. The syndrome is usually characterized by the sudden onset of headache, nuchal rigidity, mild Kernig sign, vomiting, various degrees of hyperemia of optic disks, involvement of one or several of the cranial nerves, frequent changes in pupillary reactions, mild leukocytosis, mild elevation of temperature and slow pulse; the spinal fluid is under pressure and uniformly bloody with an xanthochromic supernatant fluid. Symptoms referable to irritation of various nerve roots, particularly those making up the lumbosacral plexus, may be present. The onset is sudden. Treatment is directed toward relief of headache, reduction of intracranial pressure, alleviation of excitement and adequate feeding. Subsequent surgical measures can be considered in suitable cases of aneurysmal rupture. The authors report 2 cases of confirmed spontaneous subarachnoid hemorrhage in which the initial symptoms resembled Dietl's or renal crisis. One of the authors performed necropsies in 6 cases of fatal subarachnoid hemorrhage. All were caused by rupture of an aneurysm of a basal cerebral artery. The diagnosis of syphilitic aneurysm was made in 2 cases, that of congenital aneurysm in 1 case and that of arteriosclerotic aneurysm in 3 cases. The authors think that syphilis plays a more important role in subarachnoid hemorrhage than is generally believed.

Methadon for Pain in Bone and Joint Disorders.—The control of pain in diseases of the bones and joints has always been a serious problem. The tendency toward chronicity of the diseases and injuries to the skeletal system and the ever-present danger of addiction prevents many physicians from adequately relieving the pain of these patients. Ishmael and Stacy give a brief outline of the pharmacologic and clinical nature of the drug methadon ("dolophine" or "amidon") and report on the effectiveness of this analgesic in 106 orthopedic and arthritic patients treated in hospitals in Oklahoma City. The dosage was 2.5 mg. given orally every four to eight hours. This dose was needed as frequently as every two hours in a few cases and as infrequently as every twenty-four hours. In a few instances the drug was used hypodermically. The conditions for which the drug was administered included sciatica, rheumatoid arthritis, periarthritis of shoulder, causalgia, osteoarthritis, carcinomatosis, spondylitis, sacral pain, fractures and others. Some of the patients did not experience relief, but the impression was gained that the type of disorder has less to do with the efficacy of the analgesic than does the constitutional make-up of the patient. Some tolerated methadon who did not tolerate morphine or codeine. The authors conclude that methadon is a satisfactory analgesic for use in the control of pain of bone and nerve root. Its chief use is in patients whose pain is too severe for acetylsalicylic acid and too chronic in nature for morphine. The possible danger of habituation should be borne in mind until extensive clinical trial establishes whether this drug is definitely habit forming.

Public Health Reports, Washington, D. C.

62:1729-1756 (Dec. 12) 1947

Contributions of Sanitary Engineering Program of UNRRA to International Health. F. F. Aldridge.—p. 1729.
Report on Histopathology of Cutaneous Lesions of Case of Rickettsialpox. L. R. Hershberger.—p. 1740.

62:1757-1784 (Dec. 19) 1947

Dental Caries Prevalence and Tooth Mortality: Study of 24,092 Georgia Children in Twelve Communities. T. L. Hagan.—p. 1757.
Sickness Absenteeism Among Industrial Workers, First and Second Quarters of 1947. W. M. Gafafer.—p. 1773.

Southern Surgeon, Atlanta, Ga.

13:843-900 (Dec.) 1947

Notes on Abdominal Wounds Received in Battle. F. W. Rankin and L. E. Hurt.—p. 843.
Surgical Treatment of Hypertension. W. G. Crutchfield and J. De D. Martinez-G.—p. 852.
Some Factors in Thyroid Surgery Influencing Morbidity and Mortality. G. S. Fahrni.—p. 862.
*Vagotomy in Treatment of Peptic Ulcer. W. H. Cole, L. Walter and J. Reynolds.—p. 870.
Method of Study of Uterine Canal. W. B. Norment.—p. 885.

Vagotomy in Peptic Ulcer.—Cole and his associates discuss the status of vagotomy in the treatment of peptic ulcer on the basis of their own observations and reports in the literature. They think that good results will be obtained in 80 to 90 per cent of patients. Vagotomy appears to be particularly effective against gastrojejunal ulcer. Gastric dilatation, diarrhea, persistent or recurrent ulcer, thoracic pain (following transthoracic approach) and vagovagal reflex have been reported as complications of the operation. Gastric dilatation is reported as being one of the most frequent complications, although the authors noted it in only 10 per cent in their 30 cases. Gastric retention is common after vagotomy. In 2 patients of the authors' series so much obstruction developed that gastroenterostomy was necessary. Prolonged gastric decompression for three to six days will decrease the incidence of gastric retention. Elimination of gastric retention in all patients cannot be expected because obstruction may result from the ulcer scar if gastroenterostomy was not performed at the initial operation. It may be advisable to perform a gastroenterostomy along with vagotomy when the ulcer is large. The most serious reaction is cardiac and respiratory paralysis arising from vagovagal reflex; it may result in a fatality but fortunately is rare. The mortality rate should be less than 1 per cent. The authors have had no deaths in their series of 30 cases with 12 gastrectomies. It is probable that gastric resection is not necessary in such a large percentage of cases. The authors prefer the transabdominal operation but emphasize that if this approach is utilized meticulous search must be made for branches of the two vagus nerves, as they found three or more major vagus trunks in 90 per cent of their patients. Although results have been good, wholesale adoption of the procedure for all types of cases must not occur until sufficient time has elapsed for a correct appraisal of the permanent results.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Practitioner, London

159:351-426 (Nov.) 1947. Partial Index

Inguinal Hernia. H. Ogilvie.—p. 351.
Some Views on Femoral Hernia and Its Treatment. A. B. Birt.—p. 362.
Ventral Hernia. V. Pennell.—p. 369.
Hernia Problem in Children. L. Barrington-Ward.—p. 376.
Choice of Anesthetics for Operations on Hernia. J. Gillies.—p. 381.
Use and Abuse of Trusses. T. M. Thomas.—p. 388.

Quarterly Journal of Medicine, Oxford

16:211-314 (Oct.) 1947

Outbreak of Severe Infective Hepatitis in Burma. J. F. Stokes and A. A. Miller.—p. 211.
*Effect of Injection of Acetylcholine into Brachial Artery of Normal Subjects and Patients with Myasthenia Gravis. A. Wilson and H. B. Stoner.—p. 237.
Cryptogenic Acquired Hemolytic Anemias. J. A. Fisher.—p. 245.
Ascites in Chronic Disease of Liver. G. Higgins, A. R. Kelsall, J. R. P. O'Brien and others.—p. 263.
Studies on Mechanism of Fanconi Syndrome. J. M. Stowers and C. E. Dent.—p. 275.
Snake-Bite by Echis Carinata. R. H. Mole and A. Everard.—p. 291.

Effects of Acetylcholine.—Wilson and Stoner studied nicotine and muscarine responses to the intrabrachial injection of 10 to 80 mg. of acetylcholine in 13 normal subjects and 12 patients with myasthenia gravis. Striking differences were not observed in the response of normal subjects and of patients with myasthenia gravis. Myasthenic muscle was not found to be peculiarly hypersensitive to injected acetylcholine.

British Journal of Ophthalmology, London

31:713-776 (Dec.) 1947

Case of Metastatic Osteosarcoma in Choroid. V. T. Lees.—p. 713.
Effects of Nitrogen Mustard on Permeability of Blood-Aqueous Humor Barrier to Evans Blue: An Instance of Influence of Lesion in One Eye on Susceptibility of Other. H. Davson and J. P. Quilliam.—p. 717.
Peripheral and Central Disturbances of Visual Fields: Aspect of Di-Ophthalmology. N. A. Stutterheim.—p. 721.
Glaucoma Secondary to Fibrocystic Disease of Bone. J. W. E. Cory.—p. 731.
Variations in System of Trunks of Posterior Ciliary Arteries. T. Sudakevitch.—p. 738.
Transplantation of Vitreous: Preliminary Report. H. M. Katzin and J. Blum.—p. 760.
Autohemo-Therapy in Hordeolosis. H. J. Stern.—p. 766.

British Medical Journal, London

2:943-986 (Dec. 13) 1947

Prevention of Renal Damage by Use of Mixtures of Sulfonamides: Animal-Experimental and Clinical Studies. D. Lehr.—p. 943.
*Sulfamerazine Treatment of Pneumonia in Adults. H. Joules and S. D. V. Weller.—p. 947.
*Oral Penicillin in Treatment of Pneumonia in Adult. T. Anderson and J. B. Landsman.—p. 950.
Oral Penicillin in Young Children. A. I. Suchett-Kaye and R. B. Latter.—p. 953.
"Lymphatic Reactions" Among Relatives of Leukemic Patients. S. N. Ardashnikov.—p. 955.
Production of Rh Agglutinins Anti-C and Anti-E by Artificial Immunization of Volunteer Donors. J. J. Van Loghem.—p. 958.
*Dangers of Going to Bed. R. A. J. Asher.—p. 967.

Sulfamerazine for Pneumonia.—Joules and Weller say that there is a tendency to regard the sulfonamide drugs as superseded by penicillin not only in the severely ill but even in mild conditions where the former have proved adequate. They show that sulfonamide treatment for primary pneumonia in adults is satisfactory in the vast majority of cases and should be given before confirmation of a clinical diagnosis. The authors reviewed the last 189 proved cases of pneumonia, that is, those occurring since sulfamerazine became easily available. Cases in which pneumonia occurred as a terminal event in another mortal illness are excluded. Of 189 patients, 113 were treated with sulfamerazine from the start without a single death; 36 were treated with sulfamezathine (2-sulfanilamido-4-6-dimethyl pyrimidine) with 3 deaths, and 22 with penicillin with 1 death. Combined treatment was given to 12 patients, 1 of whom died. The remaining cases were so mild that no specific therapy was deemed necessary. The authors stress that sulfamerazine, which can be given in relatively small doses at intervals of eight hours, is a satisfactory therapeutic agent. The results are such that pneumonia can be treated at home and be reduced to a "two day fever." If there is no response within forty-eight hours the case should be reviewed at once and the facilities provided by the hospital for further investigation and treatment should be employed. The need for radiologic demonstration of complete resolution of the disease is emphasized, as is the need for adequate convalescence. Sulfonamide treatment is less troublesome than penicillin therapy. With the newer sulfonamide preparations there is no need for frequent dosage, with consequent loss of sleep. Toxic effects are minimal, provided administration is not too prolonged.

Oral Penicillin in Pneumonia.—Anderson and Landsman investigated the efficacy of penicillin administered orally to an unselected series of male patients with pneumonia. The patients were classified in two groups, one group being given penicillin orally and the other penicillin intramuscularly. On admission they were allocated alternately to the two groups. The patients who received the penicillin intramuscularly were given an initial dose of 50,000 units, after which successive doses of 20,000 units were administered at intervals of four hours for five days. Occasional patients with severe infection received higher dosage in the early stages of treatment. The mean total dose of penicillin was 800,000 units. In the oral administration of penicillin tablets of calcium penicillin with 0.5 Gm. of sodium citrate were used, which contained 20,000 or 25,000 units of penicillin. The standard dose was 60,000 units at intervals of three hours, at least during the early stage of treatment. Administration was continued for five days. The mean total dose given orally was 1,650,000 units. Two measures were adopted in an endeavor to enhance absorption and to maintain effective levels of the drug in the blood: first, the tablets were always administered along with a small amount (1 to 2 ounces, 28 to 56 cc.) of milk; second, the daily fluid intake was reduced to 2 pints (946 cc.). The results indicate that the oral administration of penicillin is a satisfactory method of treatment for pneumonia. Experience would suggest that treatment should start with a daily oral dosage equal to four times that required by the intramuscular route. After obvious clinical improvement (usually within forty-eight to seventy-two hours) this dose may be reduced by half. The authors emphasize that the indications for penicillin therapy are not changed by the present report. The sulfonamide compounds constitute an adequate method of treatment for the majority of patients; but for those who require penicillin there may be some advantage in the use of the oral route. The difficulties associated with continued injections are overcome, and treatment of pneumonia with penicillin in the home becomes practicable.

The Dangers of Going to Bed.—Asher stresses that the physician should think twice before ordering his patient to bed. He shows that rest in bed involves dangers to the respiratory system, blood vessels, skin, muscles and joints, bones, renal and alimentary tracts and nervous system. The author also directs attention to the demoralizing effects of staying in bed but admits that there is much comfort and healing in rest and that rest in bed is essential in many illnesses. His chief object was to disclose the evils of excessive rest, and he indicates how some of them can be avoided or overcome. He comments on the favorable effects of early rising after operations. He thinks that one way to avoid the dangers of bed lies in altering the equipment and arrangement of a ward. There should be a day room attached to every ward and lockers for patients' ordinary clothes. Too often patients stay in bed because, shuffling around in slippers and dressing gown, they are cold and uncomfortable. More liberal attention should be paid to breathing exercises, moving the limbs, and occupational therapy.

Journal of Tropical Medicine and Hygiene, London

50:211-232 (Nov.) 1947

Clinical Features, Diagnosis, and Treatment of Sprue. H. H. A. Elder.—p. 212.
The Malaria Patient and Quinine. C. W. F. Winckel.—p. 219.

50:233-254 (Dec.) 1947

The Manson Tradition. P. Manson-Bahr.—p. 238.
Tropical Ulcer, as Seen in South Iran, and Its Treatment with Penicillin. J. M. Pinkerton.—p. 243.

Semaine des Hôpitaux de Paris

23:2847-2892 (Dec. 21) 1947. Partial Index

Osteoarticular Nanism. L. Denoyelle and J. Bree.—p. 2847.
Neurovegetative Exploration by Determination of Cholinesterase. E. Arca.—p. 2848.
Osteochondritis of Hip or Coxa Plana. J. J. Lieffring and B. Roy. —p. 2852.
*Four Cases of Infectious Endocarditis Treated with Penicillin. G. Desbuquois and P. Binet.—p. 2856.
*Autohemic Therapy and Penicillin in Treatment of Phlebitis. J. Hussenstein.—p. 2861.

Penicillin in Infectious Endocarditis.—Desbuquois and Binet treated 4 patients, 2 women aged 32 and 25, a girl aged 15 years and a man aged 64, with infectious endocarditis lenta with penicillin. In all patients several hemocultures were positive for green-producing streptococci. The patients had recurrent attacks of fever, and the general condition grew rapidly worse. Two had mitral valvulitis, the third had a congenital pulmonary stricture and the fourth had atheromatous aortitis with aortic insufficiency. In the first three patients complete recovery resulted from daily doses of 400,000 to 1,500,000 units of penicillin given for ten days to six weeks with total doses of 4,000,000 to 45,000,000 units. Drop in temperature of the three patients occurred on the tenth, twentieth and twelfth day of treatment, respectively, and was associated with considerable improvement of their general condition. Two patients presented symptoms of nephritis with albuminuria and azotemia which disappeared simultaneously with the symptoms of infection. There were two recurrences of the infectious syndrome in case 2; they may be prevented by prolonged treatment with massive doses of penicillin. Two of the patients presented a splenic embolism on the sixteenth and on the tenth day of treatment. It seems that embolism occurs more frequently in patients treated with penicillin. The drug had a favorable influence on the cardiac condition of the first 3 patients, but the fourth patient with atheromatous aortitis died on the twenty-sixth day after penicillin therapy was started; death resulted from a myocardial infarct. Recovery of young patients with infectious endocarditis may be obtained with massive doses of penicillin administered for sufficiently long periods in spite of occasional recurrences. The prognosis is less favorable in patients with a senile heart whose myocardium is deficient.

Autohemic Therapy and Penicillin in Phlebitis.—Hussenstein treated with autohemic therapy 4 women between the ages of 41 and 64 who were operated on for gastric ulcer, Pott's disease, generalized peritonitis resulting from pyosalpinx and neoplasm of the breast, and who presented premonitory symptoms of phlebitis or apparent postoperative phlebitis. Preventive treatment consisted of intramuscular injections of 20 cc. of blood on three consecutive days followed by injections of 20 cc. of blood every second day for ten days. In patients with apparent phlebitis 20 cc. of blood were administered on six consecutive days, after which injections were continued every second day until the edema disappeared. The occurrence of edema of the lower limb was prevented in patients who after the operation had pain in the groin or calf associated with rise of temperature and acceleration of pulse. Systematic use of autohemic therapy during the days after the operative intervention may prevent the appearance of phlebitis. In those instances in which autohemic therapy is instituted after the appearance of premonitory symptoms the phlebitis seems to have a benign and a shorter course, although it may be complicated occasionally by small embolisms. It is suggested that autohemic therapy may have an effect on the fluidity of the blood and on the coagulation time in addition to its desensitizing effect on the changes in the wall of the vein. One woman aged 25, in whom pelvic thrombophlebitis occurred two months after a normal delivery, was treated with penicillin; 600,000 units were administered on the first day, 400,000 on the second day followed by daily doses of 200,000 units until a total of 2,000,000 units were given. Complete recovery resulted from this treatment. One woman aged 45 who was operated on for subhepatic appendicitis with perivisceritis presented severe symptoms of phlebitis with temperature of 103 F. (39.5 C.) on the twenty-seventh postoperative day. Autohemic therapy was instituted and combined with penicillin; within seven days the patient was given 1,200,000 units of penicillin. Temperature was restored to normal by lysis and the edema slowly disappeared. A small embolism occurred on the twenty-second day of the phlebitis. Combined autohemic and penicillin therapy is indicated in cases of puerperal phlebitis and postoperative thrombophlebitis after gangrenous appendicitis, peritonitis or suppurative adnexitis. Autohemic therapy and penicillin treatment should be practiced along with the classic methods of treatment of phlebitis, i. e., early rising, anticoagulants and infiltration of lumbar ganglions with procaine hydrochloride.

Acta Psychiatrica et Neurologica, Copenhagen

22:1-152 (No. 1 and 2) 1947. Partial Index

*Localization of Intracranial Tumors by Electroencephalography. F. Buchthal and E. Busch.—p. 9.
Intrasternal Injection of Dextrose in Wakening of Patients from Insulin Coma. J. B. Dalgaard.—p. 17.
Significance of Cortical Vasomotor Centers for Circulation. A. Lund. —p. 41.
Dietetic Therapeutic Measures in Treatment of Schizophrenia. H. Lofvendahl and W. Arnoldi.—p. 57.
*Intracranial Teratomas and Teratoid Tumors. R. Müller and G. Wohlfart.—p. 69.
Gold Intoxication of Nervous Elements on Permeability of Blood-Brain-Barrier. A. Querido.—p. 97.

Electroencephalography in Intracranial Tumors.—The material investigated by Buchthal and Busch comprises patients with surgically and pathologically verified cortical and subcortical tumors. Potential differences were led off from the intact skull with unipolar leads (the ear being used as reference electrode) and with bipolar leads, sixteen electrodes being distributed over the skull. For registration a three channel ink-writing electroencephalograph with differential amplifiers was used. In 60 verified intracranial tumors electroencephalography with unipolar leads indicated the affected hemisphere in 72 per cent, while 10 per cent were wrongly localized and 18 per cent could not be localized as to hemisphere. With bipolar leads reversal of phase was found corresponding to the tumor in 51 per cent, while low frequency potentials were found over the tumor in 73 per cent. The authors believe that the fact that they obtained better results than did Cobb in 1944 may be due to a difference in technical facilities, since Cobb only had a two channel recording device at his disposal.

Intracranial Teratomas.—According to Müller and Wohlfart the literature contains reports of 85 cases of intracranial teratomas and teratoids. The authors report 8 additional cases. Of these tumors, 5 were situated in the region of the pineal gland, 1 in the third ventricle, 1 in a suprasellar location and 1 in the cerebellum. The course was acute and rapidly progressive in every case. The patients had the symptoms from some weeks up to eight months prior to entry. In every case papilledema and other signs of increased intracranial pressure were present. The local symptoms were primarily vertical conjugated ocular paralysis and widened pupils not reacting to light. The pineal teratomas and teratoids occurred in a girl aged 7 years, in 1 boy aged 8 years, 1 aged 15 and in 2 youths aged 17. Teratomas and teratoids of the pineal gland as described in the literature have mainly occurred in young males. On histologic examination the rapid progression of the tumor could be explained as due to either malignant degeneration of part of the tumor or abundance of embryonic tissue. Oligodendroglioma can apparently develop from intracranial teratomas or teratoids. The authors suggest that cholesteatomas are related to teratomas.

American Review of Soviet Medicine, New York

5:1-96 (Dec.) (1947 (Jan.) 1948

Skoraya Pomoshch: Moscow Emergency Medical Aid System. W. P. Forrest.—p. 9.
Assimilation of Carbon by Saprophytes. A. F. Lebedev.—p. 15.
Specific Action of Optical Isomeres of Mepacrine on Dextral and Sinistral Strains of Bacillus Mycoides Flugge. V. V. Alpatov and O. K. Nastyukova.—p. 28.
Psychologic Disturbances in Children During War. G. E. Sukhareva. —p. 32.
Treatment of Neuroses Associated with Trauma of Brain. A. S. Borzunova.—p. 37.
General Nonspecific Resistance to Infection. V. I. Ioffe.—p. 41.
Gastrointestinal Reflex in Caisson Disturbances During Rapid Rise to High Altitudes. D. I. Ivanov.—p. 49.
Latent Pulmonary Fibrosis. I. G. Popkov.—p. 52.
Treatment of Gunshot Empyema of Pleural Cavity. N. V. Antelava. —p. 55.
Treatment of Trophic Ulcers. D. E. Alpern and A. Z. Tseitlin.—p. 58.
Occult Injuries to Heart. A. Y. Gubergrits.—p. 61.

Arquivos de Clínica, Rio de Janeiro

5:151-236 (Sept.) 1947. Partial Index

*Constricting Chronic Pericarditis. Recovery After Partial Pericardiectomy in Case. A. Paulino Jr. and F. Arduino.—p. 205.

Constricting Chronic Pericarditis.—Paulino and Arduino report a case of chronic constrictive pericarditis treated by partial pericardiectomy. The disappearance of the ascites and venous congestion and improvement of the roentgenologic, kymographic, electrocardiographic and capillaroscopic changes were such as to warrant considering the patient cured clinically. At present, six months after the operation, the patient has resumed work.

Klinische Wochenschrift, Heidelberg

24/25:769-800 (Oct. 1) 1947. Partial Index

Circulatory-Dynamic Study of Problem of Genesis of Hypertension in Acute Nephritis, Particularly in Field Nephritis. E. Lepeschkin and W. Pilgerstorfer.—p. 774.

Inotropic Effect of Nerves of Heart. E. Bauereisen and H. Reichel.—p. 785.

*Direct Serologic Demonstration of Heterozygotia in Blood Groups A and B: Preliminary Report. P. Dahr.—p. 791.

Heterozygotia in Blood Groups A and B.—According to Wahr, the immediate determination of the hereditary character of the blood groups of persons whose blood is classified in the A and B groups by means of serologic examination is of great practical importance for the clarification of disputed descent in cases of affiliation. Results of previous experiments suggested that in heterozygotes (in AO persons and in BO persons) the direct serologic determination of the O property originating from the O anlage may be possible by means of agglutination examination with anti-O serums. Since any anti-O animal serum may contain other unknown antibodies, the examination of blood samples of known genotype by means of a hypothetic group-specific anti-O agglutinin may be performed only with a purified anti-O solution. Samples of bovine, equine or swine blood may be used for the production of anti-O serums, but only anti-O serum which retains a pronounced anti-O effect even on repeated saturation with A_2B blood will be useful. A method for the preparation of a purified solution of an anti-O serum of this type is described. A_1 and B blood corpuscles of known genotype were examined with the purified agglutinin solution and O, respectively. AB blood corpuscles (A_1B or A_2B, i. e., blood without O anlage) were always carried with as positive and negative controls. The bottle containing the anti-O serum broke before the experiments were terminated, and consequently the results may be considered only as preliminary. All O blood samples (genotype OO) which were used as positive controls gave positive reactions; all AB blood samples (A_1B and A_2B) without O anlage, serving as negative controls, gave negative reactions; all B blood samples of genotype BO gave positive reactions; all A_2 blood samples of genotype A_2O gave positive reactions. A_1 blood samples of genotype A_1O gave partly positive and partly negative reactions. A definite diagnosis of heterozygotia can be made only in case of a positive reaction with the group-specific anti-O, while with a negative reaction it remains an open question whether there is heterozygotia or homozygotia.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

91:3425-3504 (Nov. 29) 1947

*Epidemic of Typhoid in Netherlands Troop After Arrival in Tropics. D. K. Wielenga and G. Bras.—p. 3474.

Case of Filariasis Bancrofti. P. Kooy.—p. 3481.

Typhoid in Troops After Arrival in the Tropics.—Wielenga and Bras describe an epidemic of typhoid which broke out among troops after their arrival in Java. A total of 80 cases occurred, of which 12 terminated in death. Postmortem examinations were made in 10 instances. Death was often caused by toxemia in the early stage of the disease. Hemorrhages were seen twice; in 1 patient a perforation developed at the hepatic flexure. The clinical picture was sometimes confusing because diarrhea of a dysenteric character existed, although neither dysentery bacilli nor Entameba histolytica were ever found. However, the possibility of a secondary infection was considered, and sulfaguanidine was administered in all cases of diarrhea with favorable results. To counteract the effect of toxins, transfusions of convalescent blood were given. A patient cannot be declared free from bacteria unless bile from the gallbladder has been examined and has proved sterile. Three bile carriers were successfully treated by duodenal intubation with magnesium sulfate solution; four urinary carriers were treated either with mandelic acid or by rendering the urine alternately alkaline and acid. The author stresses that prophylaxis against typhoid should be done with vaccines prepared from strains occurring in the locality to be visited.

Rev. Belge de Path. et de Méd. Expér. Brussels

18:1-100 (Feb.) 1947

*Gastric Ulcer: II. Pathologic Histology of Chronic Gastric Ulcer in Man. H. Betz.—p. 3.

Voluntary Apnea Time of Healthy Subject in Various Experimental Conditions. M. J. André and V. Boxus.—p. 42.

*Variations in Density of Arterial Blood and Its Hemaglobin Content in Course of Water Diuresis in Man. P. Govaerts and A. Verniory.—p. 78.

Contribution to Immunobiologic Study of Animal Fats. R. Derom.—p. 90.

Histologic Study of Chronic Gastric Ulcer.—Betz subjected to microscopic study specimens taken from the area of chronic gastric ulcers either in the course of resection or necropsy. He found fibrinoid necrosis in the intima of the arteries and in the connective tissue, often at a distance from the ulcer. Small hemorrhagic foci and edematous areas are often found near the ulcer. The occasional detection of signs of repair of the mucosa near the ulceration suggests that not all erosions become chronic. The intima of the arteries near the subserous tissue shows proliferation with differentiation of new muscular and elastic fibers. In over 38 per cent of the patients with chronic ulceration of the gastrointestinal tract who came to necropsy there existed disturbances in the general or portal circulation, which may have had repercussions on the gastric circulation. On the basis of these observations the author believes that neither emboli nor arteriosclerosis play a role in the pathogenesis of ulcer. Arterial occlusion is a consequence of local circulatory disturbances and not of arterial inflammation. It is not the cause of the ulceration. An allergic origin of the ulcer is possible but cannot be demonstrated by microscopic methods alone. If this hypothesis is correct, the circulatory disturbances would play their part only in the localization of the allergic reaction.

Changes in Arterial Blood During Water Diuresis.—Govaerts and Verniory studied the density of whole arterial blood and of its plasma in 30 persons by means of the Lindström-Lang technic. The hemoglobin content of the same specimens was determined with the Pulfrich photometer. About one hour after the ingestion of 1 liter of water, the density of blood decreases about 2.5 per cent, that of plasma 3.5 per cent. The hemoglobin content decreases by about the same percentage as does the density of the whole blood (an average of 2.73 per cent). If one wishes to express the dilution of blood in terms of increase in volume only hypotheses are possible. The first idea which comes to mind is that if the blood is diluted by water without losing or gaining protein or red cells, then 100 cc. of arterial blood should contain 2.61 cc. of excess water, distributed one fourth in the red cells and three fourths in the plasma. But although this concept is in perfect agreement with the observed changes, to prove it by direct observation would, for instance, entail demonstrating that the volume of the erythrocytes increased by 1.39 per cent. It is hardly possible to measure such a change by available methods. Other hypotheses might be suggested concerning the mechanism of blood dilution. One might assume that the fluid entering the blood is not pure water but a solution of salts and proteins, or one might postulate a removal of red cells from the blood after ingestion of water. Such hypotheses are not incompatible with the experimental results. However, they seem to be less probable than the first one and are not easier to prove by direct observation.

Book Notices

The Dispensatory of the United States of America. By Arthur Osol, Ph.G., M.S., Ph.D., Professor of Chemistry and Director of the Department of Chemistry, Philadelphia College of Pharmacy and Science, Philadelphia, George E. Farrar, Jr., M.D., F.A.C.P., Associate Professor of Medicine, School of Medicine, Temple University, Philadelphia, and others. Advisory Editor: Horatio C. Wood, Jr., M.D., Ph.M., Professor of Pharmacology, Philadelphia College of Pharmacy and Science, Philadelphia. Based on the Thirteenth Revision of the United States Pharmacopœia, the National Formulary, Eighth Edition, and the British Pharmacopœia 1932 and its Addenda. Twenty-Fourth edition. Cloth. Price, $16.50. Pp. 1928. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1947.

The Dispensatory of the United States of America is well known. Now in its twenty-fourth edition, U. S. D., as it is popularly known, provides a unique comprehensive review of the drugs recognized by the United States Pharmacopeia, the Pharmacopeia of Great Britian and the National Formulary, and of drugs that are not official in these books. It also offers information on general tests, processes, reagents and solutions, veterinary uses and doses of drugs, various tables that are found in the United States Pharmacopeia and National Formulary and other pertinent information. The first edition appeared one hundred and fifteen years ago and probably has been used more by the pharmacist than the physician. However, even though some may disagree with some of the statements of possible uses, the book has so much value that it can provide a real help to the medical practitioner as well as the teacher. Individual monographs are arranged alphabetically and provide information on official titles, synonyms and abbreviations, official definitions, unofficial synonyms, foreign language titles, trade names and trademarks, source of manufacturing process and its history, official descriptions including tests, assay methods, constituents, adulterants, therapeutic uses, toxicology, dosage, storage directions and official preparations. The format is agreeable for the average reader, and the style of writing and manner of treatment should be generally acceptable. The book should find its way into the libraries of those who insist on having adequate sources of references.

A Century of Service, Rochester General Hospital, 1847-1947. Written for the Hospital in Celebration of its One Hundredth Anniversary by Virginia Jeffrey Smith, Together with Chapters on the Medical Staff by Charles R. Witherspoon, M.D., Stearns S. Bullen, M.D., and William A. MacVay, M.D. Boards and Fabrikoid. Pp. 227, with illustrations. Rochester, N. Y., 1947.

Beautifully printed and designed for public interest as well as for reference as a historical document is this review of a great American institution, the Rochester General Hospital. It came into existence following the depression of 1837 and it grew out of a female charitable society. It added a school of nursing and the other functions that hospitals have added in modern times. The story is told simply and directly with many illustrations, and the book might well serve as a model for other volumes dealing with similar institutions. Since the hospital was always conducted efficiently and economically, the record of its growth and development is also a guide to modern hospital administration.

Cornell Conferences on Therapy. Volume Two. Edited by Harry Cold, M.D., Managing Editor, and others. Cloth. Price, $3.75. Pp. 354. The Macmillan Co., 60 Fifth Ave., New York 11, 1947.

By now Cornell Conferences on Therapy have become familiar to students and teachers. The series was begun in 1937 and for several years was published in The Journal of the American Medical Association. Volume I was so successful that a second printing was necessary within a few months after its publication. Volume II, which comprises a series of sixteen conferences, should be equally successful as it will be of interest to the intern, resident, practitioner, and teacher. There were almost forty participants in the conferences, which include discussions of the use of placebos in therapy, treatment of poliomyelitis, treatment of meningitis, treatment of syphilis, treatment of rheumatic fever, oral penicillin, choice of sympathomimetic amines, management of gallbladder disease, principles of treatment of edema and dehydration, uses and abuses of quinidine, treatment of coronary artery disease, treatment of some tropical diseases, surgical treatment of hypertension and the evaluation of local antisepsis. Those who have participated in these conferences are well known in the fields in which they work, and authenticity is given to this book by the association of their names.

Essentials of Pharmacology. By Frances K. Oldham, M.Sc., Ph.D., Research Associate in Pharmacology, the University of Chicago, Chicago, F. E. Kelsey, Ph.D., Associate Professor of Pharmacology, the University of Chicago, and E. M. K. Geiling, Ph.D., M.D., Frank P. Hixon, Distinguished Service Professor and Chairman of the Department of Pharmacology, the University of Chicago. Fabrikoid. Price, $5. Pp. 440, with illustrations. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1947.

This is intended to serve as an introductory textbook on pharmacology. It does not contain detailed information for the advanced student, and the authors have wisely omitted lengthy discussions of articles seldom used in modern therapy. The book is up to date and conforms to the products listed in the latest editions of the official compendiums, N. N. R. and other recognized volumes. Included in the discussions are the functional drugs and chemotherapeutic agents, but one of the most interesting sections of the book is related to general principles, in which are statements on historical development of pharmacology, general principles of pharmacology, control and dispensing of drugs and administration of drugs. Brevity is an outstanding feature of the book, and yet this does not lessen its usefulness.

Practical Difficulties in Pharmaceutical Preparations. Collected from the Notes Left by Late Mr. Avadhut K. Pradhan, B.Pharm., Ph.C. Compiled by Dr. K. N. Pradhan, L.M. & S. Avadhut Memorial Series No. 1. Paper. Price, 2 rupees. Pp. 12. Published by R. T. Deshmukh, at Saraswati Press, Nagpur, for Late Avadhut Memorial Trust, Avadhut Bhuvan, Nagpur, 1947.

This is a brief collection of notes left by a young man, a pharmacist, who was beaten and killed, and whose body disappeared in Calcutta, India.

Formulary, University Hospital, Ann Arbor, Mich. Second edition. Cloth. Price, $3.75. Pp. 422, with illustrations. University of Michigan, University Hospital, Ann Arbor, 1947.

The development of hospital formularies has assumed an important place in hospital life. Some have been so well received that the reception has extended beyond the walls of the hospitals for which they were originally intended. This formulary, prepared by the University Hospital, Ann Arbor, Mich., is such a publication. The first edition appeared in 1946, the second in August 1947. So many developments have occurred that it was necessary to add new sections, including discussions on amino acids, the newer analgesics, antihistaminics and other drugs that have now gained either general recognition or are being widely used for clinical research. Each drug is identified as to whether it is U. S. P., N. F. or N. N. R., although some appear that are not in any of these books. In addition to the descriptions there are statements of dosage. Wisely, the writers of the volume have seen fit to omit detailed descriptions of actions and uses. This is a creditable attempt to provide a useful formulary for the hospital staff.

Le pouvoir antiprotéolytique du sérum sanguin chez la femme. Par Roger Le Breton, Docteur en médecine. Paper. Pp. 103, with 4 illustrations. Imprimerie M. Declume, Lons-Le-Saunier, 1946.

The author has developed a new, simple technic for the determination of the antiproteolytic power of blood serum. Experimental conditions such as the quality of the materials used and the temperature and duration of the reaction were strictly controlled. He measured antiproteolytic power in terms of the inhibitory action of 1 cc. of serum, as determined by the percentage of fibrin remaining unchanged during digestion with a proteolytic ferment. Proteolytic power was measured by the percentage increase of the fibrin broken down under the same conditions.

The method enabled the author to gather evidence in the female of a hitherto unknown proteolytic power of certain blood serums, but most of his data concern the antiproteolytic power of the blood serum in various obstetric and gynecologic conditions. Four hundred and sixteen observations were carried out in 314 female patients, of whom 168 were pregnant. More often than not, only one determination was done in each patient. He found a diminution of the antiproteolytic power in patients showing (1) death of the fetus in utero, (2) habitual abortion, (3) the menopause. An increase was found in (1) pregnancy, (2) the immediate period following castration, (3) gynecologic infections and (4) during autohemotherapy combined with sulfarsphenamine in patients treated successfully for habitual abortion. There was a transition from antiproteolytic to proteolytic power in metrorrhagia and occasionally in the menopause. Although he found an analogy between the curves of evolution of antiproteolytic power and that of folliculinemia in the course of gestation, this was not the case during the menstrual cycle. The increase in antiproteolytic power provoked by infections points to a defense reaction, not necessarily an estrogenic mechanism. Because of this increase, it is imperative that every patient have a physical examination and white blood cell count in order to rule out an infection.

The author claims that the determination of the antiproteolytic power of the blood serum offers a diagnostic procedure in pregnancy and a method of control of the treatment of habitual abortion by autohemotherapy combined with sulfarsphenamine.

Biological Actions of Sex Hormones. By Harold Burrows, C.B.E., Ph.D., F.R.C.S. Cloth. Price, $8.50; 42s. Pp. 514, with 7 illustrations. New York: The Macmillan Company; London: Cambridge University Press, 1945.

This is a well coordinated summary of developments in our knowledge of the sex hormones derived from the study of the pituitary, gonads and adrenals in animals. It shows an appreciation of the varying factors which must be taken into account when discussing any reaction. For example, in Part I, on the subject of gonadotropins, there is a chapter devoted to factors which influence the gonadotropic activity of the pituitary, another on factors which influence the reaction of the gonads to gonadotropins and another on factors which affect the cytologic structure and weight of the anterior lobe of the pituitary. The section on androgens has a chapter dealing with the action of these hormones on the reproductive system before complete differentiation and another chapter on their action after complete differentiation. The section on estrogens is treated in the same manner. The author states that his leading motive is the ultimate possibility of applying the experience gained from the laboratory for the benefit of man. In general, he wisely refrains from a direct attempt to do so in this book, perhaps realizing that conclusions based on animal experiments cannot always be applied to man without considerable modification. An appendix gives synonyms for the biologic products used, and a glossary explains some of the technical terms. There is both an author and a subject index.

The Premature Baby. By V. Mary Crosse, M.D., D.P.H., M.M.S.A., Chief Obstetric Officer in Charge of City of Birmingham Maternity Homes and Premature Baby Unit, Birmingham, England. With foreword by Leonard G. Parsons, M.D., F.R.C.P., F.R.C.O.G., Professor of Children's Diseases, University of Birmingham. [Reprint] Fabrikoid. Price, $3. Pp. 156, with 14 illustrations. The Blakiston Co., 1012 Walnut St., Philadelphia 5, 1946.

Dr. Mary Crosse, the author, is chief obstetric health officer in charge of maternity homes and the premature baby unit of the city of Birmingham, England. Fourteen years ago she commenced an attack directed toward the reduction of mortality among premature babies. Her work was so encouraging that English physicians, who watched her, often wished that she would describe her methods, so that others might profit by them and follow her example. This book is the result. According to the English pediatrician Dr. Leonard G. Parsons, her experience and results in this field have been unrivalled in that country. According to him the book is unique in British literature.

The book is divided into eight chapters, an appendix and an index. The chapters deal with characteristics of premature infants, general scheme of management and care, institutional care, home care, clothing, methods of feeding, complications that occur in premature babies and various tables and statistics relating to the premature baby in England. There are fourteen illustrations, most of which are photographs illustrating various technics, i. e., weighing, bathing, feeding, administration of oxygen, ultraviolet radiation and the like.

This book is, according to American standards, more in the nature of a compend or outline and is generalized more than detailed. A special feature is the teaching of simple methods; methods that any English midwife could employ when called on to nurse a premature baby in its own home. English physicians visiting this country have stated that Dr. Crosse and her book have done much to acquaint the English physician in the care of premature infants and to bring about a resulting reduction of mortality.

However, the book would not be suitable for teaching of American physicians, because books and articles available to the American physician are more detailed in the employment of technical procedures used in this country. For example, Dr. Crosse pictures a heated uncovered transport basket, whereas in larger cities here an enclosed transportable incubator is frequently used; oxygen is administered by face mask rather than by the tent, hood or enclosed incubator more commonly used here. Intravenous therapy is not stressed because of the lack of trained personnel.

This is distinctly an English book for the British general practitioner and as such has served a useful purpose in the British Isles.

Office Endocrinology. By Robert B. Greenblatt, B.A., M.D., C.M., Professor of Endocrinology, University of Georgia School of Medicine, Augusta, Georgia. With a foreword by G. Lombard Kelly, M.D., Dean, University of Georgia School of Medicine, Augusta. Third edition. Cloth. Price, $4.75. Pp. 303, with illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Ill., 1947.

This book claims to give the practicing physician the latest practical, reliable facts about endocrinology, simply and definitely; yet almost all of the volume is devoted to "female endocrinology." There is a brief section on "male endocrinology." Another brief section on "hormonology" and a five page introduction on "regulatory mechanisms" cover the rest of the endocrine system. The section on hormonology merely describes the actions of the estrogens, progesterone, androgens and the adrenal cortical, thyroid and pituitary hormones. Thus, there are no clinical data on any endocrine glands other than the gonads. The pancreas and parathyroids are not mentioned in the section on hormonology. "Female endocrinology," which occupies most of the book, is a condensed outline containing many practical points in diagnosis and treatment. Some of the recommendations seem a little optimistic. Hormone nomenclature is well covered in the section on hormonology.

Solutions and Dosage. By Sara Jamison, R.N. Cloth. Price, $2.50. Pp. 295, with 62 illustrations. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18, 1947.

An understanding of simple arithmetic, through "percentage" and "ratio and proportion," is essential to the accurate preparation and administration of drugs. This textbook provides a clear presentation of simple mathematical relations, explained in terms of both the apothecary and metric systems of units. It contains chapters on arithmetic review, on the preparation of solutions and on dosage, with many exercises and experiments designed to develop facility in accurate calculation. The problems deal with drugs used in modern therapy. This book should prove useful to student nurses, pharmacy students and physicians who wish to review simple arithmetic.

Diseases of the Nervous System Described for Practitioners and Students. By F. M. R. Walshe, M.D., D.Sc., F.R.C.P., Physician in Charge of the Neurological Department, University College Hospital, London. Fifth edition. Cloth. Price, $1.50. Pp. 351, with 59 illustrations. Williams & Wilkins Co., Mount Royal & Guilford Aves., Baltimore 2, 1947.

This is a most practical and useful book. The author writes from a standpoint of physiology and anatomy and therefore does not force the student or practitioner to memorize individual symptoms of each nervous disease. This format and this method of describing neurologic diseases are well adapted to a book of this type. The twenty-nine chapters are divided into two parts. Part I takes up the general principles of neurologic diagnosis. Part II gives a descriptive account of the commoner diseases of the nervous system. This book is written for the student and the general practitioner, but it should be in the hands of all medical men—practitioners as well as specialists.

The Diagnosis and Treatment of Diarrheal Diseases. By William Z. Fradkin, A.B., M.D., Assistant Attending Gastroenterologist, Jewish Hospital of Brooklyn, N. Y. Cloth. Price, $6. Pp. 231, with 111 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1947.

This short manual covers thoroughly the diarrheal diseases from clinical, laboratory and public health aspects. In addition, the introductory chapters discuss related anatomy, physiology, bacteriology, pathology and diagnostic procedures and technics.

There is unquestionably a wealth of material in this manuscript, but the method of presentation leaves the reader wondering why so much space is wasted in description of simple laboratory procedures and methods of physical diagnosis and so little time spent in interpretation of results. By the same token, therapeutics is described in general terms. The practitioner who wishes to use this for reference will find complete lists of suggested treatments but little discussion of their indications.

This oversimplification on one hand and painful detail on the other suggests that the manual be recommended for study by medical students and young practitioners. It will not be found of great value by experienced gastroenterologists.

Dying, Apparent-Death and Resuscitation. By S. Jellinek, M.D., Professor of *Electropathology at the University of Vienna, Vienna.* Cloth. Price, $3.50. Pp. 263. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

The author of this book spent his lifetime collecting data and making notes on this subject. Some of the material is interesting, but a large part is irrelevant. The author calls "The practice of lifesaving today—a dismal medical wilderness." Knowledge of resuscitation should be a requirement for the practice of medicine. Dr. Jellinek attempted to formulate a program for resuscitation. He is professor of electropathology at the University of Vienna, where they have "a pathologic museum which is practically a department of life saving."

The first paragraph of the first chapter indicates the author's style and presentation: "It is in itself a strange contradiction that some learned doctors of strict integrity do not hesitate to pronounce categorically that there is in reality no such thing as 'apparent-death,' whilst others of no less esteem make testamentary depositions that the heart-incision shall be performed on them; but this contradiction reveals the darker side of the problem which has tormented mankind throughout the ages. Neither the attitude of the opponents of the 'apparent-death' theory nor that of its adherents can stand up to critical examination. The former unscrupulously disregard every argument and simply deny the existence of apparent-death and its concept, the latter believe in apparent-death but bring discredit on the idea. The opponents press their arbitrary dogmatism (in support of which they are unable to advance a single argument from the field of objective knowledge) to the point of saying that even babies born in a state of asphyxia should be regarded as dying or stillborn, forgetting in their ardor (not to call it fanaticism) that even the object of contention, i. e., the alleged seemingly-dead person, has the right to be heard and justly treated."

The second chapter, on "Fables and Facts," starts off with this sentence: "Myths, sagas and chronicles of all times show that those fundamental and inexorable phenomena of life, death and its shadow, apparent-death, have deeply troubled mankind throughout the ages."

The third chapter is on "Clinical Thanatology" and begins as follows: "Not only has life pulsating freshly in each one of us its own peculiar motif, its own rhythm; but the sonorous finale, death, has in each one of us its individual cadence."

There are 246 pages of material similar to the foregoing quotations. The book is a compilation of notes and observations largely of a metaphysical nature. This reviewer would not classify it as a textbook for students and practitioners of medicine.

The Medical Writings of Anonymus Londinensis. By W. H. S. Jones, Litt.D., F.B.A. Cloth. Price, $2.75. Pp. 168. Macmillan Co., 60 Fifth Ave., New York 11; Cambridge University Press, Bentley House, 200 Euston Road, London, N. W. 1, 1947.

This book is the author's translation of a Greek medical papyrus of the second century A. D., measuring 12 feet long, consisting of thirty-nine columns, each containing fifty to sixty lines about 3 inches long, with some mutilated and illegible parts. It is probably not a copy of an edition but is probably a copy by a young student of another copy, or rather a paraphrase of such by one and the same scribe—perhaps of lecture notes. No post-Aristotelian authority is mentioned, and it is probably of a Menonian origin.

After a short preface, followed by an introduction and "additional notes" and the bibliography, there follows the running text in Greek on the left side of the succeeding pages, with the corresponding English translation on the right sides of the pages.

The text begins with definitions of Greek words followed by the etiology of diseases, according to various authorities, and ends with the development of physiology after 300 B. C. (from Herophilus to Alexander Philalethes). The last section (on physiology) is quite the largest of the three. The book ends with a chapter on "The Nature of Greek Thought" and "The Nature of Greek Medicine," followed by one and one-half pages of an "Index of Notabilia."

This book is of little interest to the general practitioner of medicine. Even its arrangement is a bit disconcerting; except for the first four and one half pages of introduction, the "additional notes," chiefly of philologic interest to the Greek scholar, had better be put at the end of the text after the interested reader has discovered the detailed nature of the text. The translator's suggestion that the text is a paraphrased copy of lecture notes by a young student seems justified because of its repetitious parts and other "existing blemishes." Its physiologic section with its anatomic references is the most interesting to any student of the history of physiology. Of the latter it is stated that simple parts of man such as "brain, sinew, artery and vein are such because these can be cut up into like parts whereas compound parts such as legs, liver, head and lung are not homogeneous."

The original lecturer author was conversant with the fact that arteries contain blood and not breath (air). Of the foods ingested some may contain good and bad material on digestion; but the bad is excreted by the urine for the latter is "pungent and salt," which ends the physiology of the bladder; for even the sun, "being an intelligent ball of fire out of the sea, is nourished from the nutritious parts of the sea, taking in part what is fine, but leaving in the sea the more sluggish, the grosser and salt portion" (p. 117). On the basis of alleged facts, athletes are fed with warm loaves of bread and fresh meat because they are heavier than high meat and cooled loaves which, because they are light by nature, are less nutritious and have in cooling given off many emanations. Empirics oppose this view because they say "the addition of one thing to another does not necessarily make the latter heavier," for sometimes much addition makes the object lighter and sometimes the subtraction of a part of the object makes the object heavier; for a bladder filled with air is lighter than an empty bladder, or as when the soul leaves the body, the body becomes lighter (p. 131). Aside from the lack of suitable scales, the fallacy implied in the simple mathematical statement should have been apparent.

However, the didactic value in principle of these lecture notes lies in the fact that in the expositions of physiologic processes the authorities are cited for one view or the other. A discussion of diverse opinions with bibliography often is not presented even at this age by many so-called modern teachers of medical students. Here the ancient bibliography is present in the form of references to the views of Herophilus, Erasistratus, Plato, Hippocrates, Aristotle, Thrasymachus and so forth. To repeat: this book is of interest only to the medical historian and Greek philologist and not to the practitioner of medicine.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

VAGINAL SMEARS FOR DIAGNOSIS OF CANCER

To the Editor:—Please describe a simple office procedure for taking vaginal smears for the early detection of cancer of the uterus.

Rudolph Joseph, M.D., Freeport, N. Y.

ANSWER.—The technic for preparing vaginal smears, as described by G. N. Papanicolaou and H. F. Traut (Diagnosis of Uterine Cancer by the Vaginal Smear, New York: The Commonwealth Fund, 1943) is as follows:

"A slightly curved glass pipet, 6 inches (15 cm.) in length, 0.5 cm. in diameter with a rounded tip and a small opening, and equipped with a strong rubber bulb for producing suction is used. The patient is placed on an examining table in the lithotomy position. The labia are separated and the rubber bulb compressed. The glass pipet is introduced into the posterior fornix of the vagina. The pressure on the bulb is then released and the suction produced serves to aspirate vaginal fluid with its cellular content into the glass tube. While aspiration is in progress, the tip of the tube is moved from one side of the fornix to the other so that all parts are sampled. The pipet is then withdrawn, and the vaginal material is spread on the surface of a clean microscope slide with a sudden expulsive pressure on the bulb. Further spreading with the convex side of the pipet is advisable when the amount of fluid is abundant, as in cases where there is considerable bleeding or abundant mucus. Very thick smears are not well penetrated by the fixing fluids and cannot be uniformly stained.

"The slides are immediately plunged into a solution of equal parts of 95 per cent alcohol and ether. Drying of the smears should be carefully avoided as it results in the loss of the sharp outlines of the cells, and in a change in their staining reaction. The fixation does not require more than a few minutes, but smears may be kept in the alcohol-ether solution over a long period of time. It is recommended that the slides not be kept in the fixative for more than a week or two as the cells slowly tend to lose their normal staining reaction. If ether is not available, plain alcohol (95 per cent) can be used. For shipping slides, a square bottle 1¾ by 1¾ by 4½ inches (4.5 by 4.5 by 11.4 cm.) may be used. Such a bottle may hold as many as seven or eight slides. An ordinary paper clip attached to each or every other one of the slides prevents the smears from rubbing against one another.

"A few precautions should be observed in the procurement of material for the vaginal smear. The vaginal contents should not have been disturbed by any form of examination or treatment. Douching or bathing will, of course, dilute or completely wash away the cellular deposits for a period of several hours. If there is a considerable amount of fluid of either serosal or sanguineous character, dilution will occur, in which case it is wise to make several smears to obtain the representative cell constituents which are ordinarily seen in a single smear."

ADENOIDECTOMY

To the Editor:—A child aged 3½ years has enlarged tonsils without evidence of gross infection but has occasional attacks of sore throat. A pediatrician suggests removal of adenoids and states that tonsils may improve as a result of the adenoidectomy. Is such a procedure preferable to the customary tonsillectomy and adenoidectomy? At what age and in what season are such operations best performed? Is preoperative administration of vitamin K and penicillin indicated in these cases?

R. V. Brokaw, M.D., Trenton, N. J.

ANSWER.—Because of a natural tendency to routinize procedures, both tonsils and adenoids are usually removed at the same time. There must be numerous occasions, however, when either the tonsils or adenoids alone should be removed.

In each case the determining factor should be the past history of the patient and the observations at previous examinations and at the time of operation. If the indication for operative removal of the tonsils is absent then they should not be removed.

This statement would be academic, however, if it did not take into account a number of facts. Assume that the child appears to need adenoidectomy only. In a year or so he will be of school age and will be in frequent contact with many other children at a time when they are all most susceptible to infections of the upper part of the respiratory tract. Neither the parents nor the physician would shortly like to be confronted with the need for another operation with its physical risks and psychic trauma.

The problem would be simpler if the child had never had trouble with his tonsils; it is more difficult if the past history is that of a few mild attacks. The next attack may or may not be soon and severe.

In the last analysis, then, at the time of adenoidectomy one would remove the tonsils described if it is believed that they have already or will shortly cause more disturbance. The history of the patient and the skill and judgment of the physician will be more helpful toward a solution than the present appearance of the tonsils.

Set age or optimum time for operations of this type is not established. They are to be carried out when sufficient indication for operation is present.

Borderline cases may be postponed and observed, and other measures such as radiation therapy considered, until operative removal becomes clearly the method of choice. No reason exists for believing that adenoidectomy alone will improve diseased tonsils.

This operation should not be done in the presence of a poliomyelitis epidemic or at the height of an ordinary seasonal rise in poliomyelitis.

In children who are allergic or who come from allergic families an operation at the height of the pollen seasons is not desirable.

A number of competent observers believe that neither vitamin K nor penicillin offer additional protection.

THROMBOPHLEBITIC ULCERATION

To the Editor:—I have a female patient, aged 42, who has four children. Questionable evidence of phlebitis occurred after the last delivery, which was eleven years ago. Seven years ago the patient had a pelvic operation, after which there developed deep phlebitis on the left side. Extensive eczema and ulceration of the lower part of the leg also developed. A high saphenous ligation and two flap operations have been performed with little, if any, improvement of her condition. With the history of phlebitis I doubt if satisfactory result will be obtained from attacking the superficial saphenous condition. She still has varicose veins, but undoubtedly these are due to a compensatory mechanism. What is the status of lumbar sympathectomy and the excision and grafting procedure? What is suggested in treatment of this condition?

John S. Reed, M.D., Kingsport, Tenn.

ANSWER.—The treatment of chronic recurrent, thrombophlebitic ulceration is admittedly difficult. Since the chronic venous stasis is brought about mostly through a reflux in the deep venous system, ligation of the saphenous vein at the groin is not apt to be of much help. However, this factor has to be studied in each case. Certainly injection into the saphenous collateral vessels in the presence of a thrombophlebitic induration and eczema will only result in more edema and lymphstasis. Ligation of the superficial femoral vein, if its patency can be ascertained, is more logical, since the recanalized, thickened valveless deep venous system is responsible for much of the venous stasis in the erect position. The selection of the proper type of patient for this operation requires a great deal of experience; the operation may do more harm than good if deep venous pressure is increased by the procedure.

Lumbar sympathectomy is useful but only in those patients who exhibit increased sweating, decreased pulsation and decreased skin temperatures in the affected extremity.

Wide excision of the ulceration, down to or including the deep fascia, followed by a split-thickness skin graft taken with a dermatome is the method of choice in most instances. This operation not only removes the indurated, inflamed tissue around the ulcer but interrupts the incompetent perforator veins and excises the strangled and inflamed peripheral nerve supply. It must be followed by many months' use of snug elastic support with glycerin-gelatin casts and later use of elastic hose.

RHEUMATIC HEART DISEASE

To the Editor:—A boy aged 5 years, who lived in St. Louis and who had a known functional heart murmur contracted a streptococcic tonsillitis and pharyngitis. Several days later mild scarlet fever developed. A mild rheumatic heart disease resulted. The child is convalescing from the rheumatic heart disease, and apparently there will be no residual cardiac involvement. He is now in Arizona recuperating. The problem arises as to the advisability of returning this boy to St. Louis during the winter months. Should he remain in central Arizona where the climate is warm and dry and where there is supposedly less tendency for rheumatic fever to occur?

M.D., Arizona.

ANSWER.—Clinical experience has shown that in mild and dry climates there is in general less streptococcic respiratory infection than in the colder, wet regions of the northern temperate zone. The chief hazard to a patient recovering from recent rheumatic fever is a recurrence or recrudescence of his disease, and streptococcic infection is the commonest precipitating factor. Hence, the patient would be less apt to have a recurrence in a climate such as Arizona than in St. Louis during the winter months.

TRAUMATIC EPILEPSY

To the Editor:—A patient aged 20 had a fractured skull, grossly bloody spinal fluid and a Babinski reaction on the right side. One and one-half years after the injury to the skull, the patient commenced to have seizures that started with an outcry and spasm of the jaw muscles, first on the left side, followed by a short period of unconsciousness and clonic movements of both legs. Neurologic examination is now repeatedly negative. The electroencephalogram showed, "steady 10 per second; no focus; no seizure discharges; slight build-up with overventilation. A minor attack occurring during the record showed no change." In the light of this evidence can I make the following conclusions? 1. The history of a Babinski reaction on the right side and the start of the seizures on the left side of the face suggests a focus, very probably of traumatic origin. 2. The essentially normal electroencephalogram does not rule out focal epilepsy, so-called, but a positive tracing would be fairly conclusive evidence of the existence of focal epilepsy.

M.D., New Hampshire.

Answer.—The site of the fracture of the skull is not stated. The other evidence is contradictory, but probably the left-sided muscular spasm that initiates seizures is of more significance than the former right-sided Babinski reflex. The diagnosis of focal grand mal epilepsy is made by the description of the seizures. The normal electroencephalographic tracing does not alter this diagnosis, although the failure to record a seizure discharge during a seizure is peculiar. A record made during sleep should be more revealing. The possibility of a subdural hematoma is to be considered.

DILUTE HYDROCHLORIC ACID

To the Editor:—What is the rational of the use of dilute hydrochloric acid and a low salt diet in hypertension?

M.D., New York.

Answer.—Theoretically, dilute hydrochloric acid in combination with a low salt intake should tend to lower the sodium content of the body even more effectively than a low salt diet alone. The idea of low salt therapy for hypertensive disease is not new. Earliest studies along these lines were by the French (Achard, C., and Leoper, M.: *Compt. rend. Soc. de biol.* **53:**345, 1901; Widal and Lemierre: *Bull. et mém. Soc. méd. d. hôp. de Paris* **20:**785, 1903). Experimental studies with rats (Grollman, A., and others: *J. A. M. A.* **129:**533 [Oct. 20] 1945) indicate that radical reduction in sodium content reduces the blood pressure in experimentally induced renal hypertension. The rice diet advocated by Kempner (Kempner, W.: *North Carolina M. J.* **5:**125 [April] 1945; *ibid.* **5:**273 [July] 1944) is based on the concept that it supplies the minimum amount of sodium and is extremely low in protein, thus sparing the kidneys.

However, the clinical value of severe sodium restriction and depletion of sodium reserve in hypertensive disease is by no means fully demonstrated. Clinical improvement claimed by those advocating this method of therapy has not been confirmed with sufficiently extensive and well controlled studies elsewhere. For years the pendulum has swung back and forth: waves of enthusiasm for severe salt restriction have been followed by waves of skepticism and demonstration that such an unpalatable diet does not accomplish enough to warrant insistence on its continuance. Experimental renal hypertension finds its counterpart in only a relatively small percentage of cases of hypertensive disease in human beings. Hypertension is due to many causes; the etiologic factors are seldom identical in different patients. Anxiety plays an important role in many instances. It is notable that only those patients who are extremely apprehensive regarding their hypertension will follow the strict dietary regimen for any length of time and that such persons are particularly open to the psychogenic effects of faith and reassurance.

MENOPAUSE

To the Editor:—Please advise me regarding estrogen administration, which was discussed in *The Journal*, Nov. 8, 1947, page 680. A patient had an early menopause at 35 years of age: she has not menstruated for ten years (aged now 46). She still has hot feelings and flushes, and her skin is hot at night in bed. She gets relief with 5,000 units of theelin twice a month or every ten days but has been receiving it for ten years. Her mother aged 62, died three years ago with metastases to uterus and ovary following removal of a cancer of the breast fifteen years previously. Should this patient receive any more theelin? She is a high strung, emotional woman.

Frederick G. Wandall, M.D., Clayton, N. J.

Answer.—In treating menopausal symptoms, patients who have a personal or familial history of cancer of the accessory sex organs should not receive estrogenic therapy. This patient is apparently emotionally unstable, and perhaps there has been considerable psychic trauma due to the fact that her mother died from a dreaded cancer. Sedation and reassurance may be of value in the relief of some of her symptoms. The use of androgens has been recommended as benefiting patients in whom estrogens are contraindicated.

RIGHT-SIDED HEART FAILURE

To the Editor:—Please give an opinion on treatment of acute right-sided heart failure. I meet this condition occasionally in older patients with chronic emphysema associated with chronic bronchitis and/or bronchiectasis and in younger patients with mitral stenosis.

The former may have attacks of pain in the abdomen which mimic closely an acute condition of the upper part of the abdomen such as gallstones, or pain may occur at the lower end of the sternum, in which case it is apt to be misdiagnosed as a coronary attack. In the latter group pain is more often apt to be entirely abdominal. Rigidity of the upper part of the right rectus muscle may occur. The liver is sometimes excessively enlarged, either temporarily or permanently, or it may not be palpable. The veins of the neck are frequently distended.

My patients are usually taking digitalis and may be fully digitalized at the time of the attack. During the attack the pulse becomes of poor quality and the extremities become cold. Should such a patient be bled, even if he appears to be in shocklike state? Is acute right-sided heart failure always an indication for bleeding?

The method of treatment is partly the treatment of medical shock; e. g., treatment of "forward" heart failure in acute coronary thrombosis, in which the patient may die in a few hours. A better example is the circulatory failure of diphtheria. At a recent cardiac conference one cardiologist expressed the opinion that such a child should have been depleted with mercurial diuretics, although the child received 1,000 cc. of blood in divided doses.

Patients with mitral stenosis whom I have seen in acute attacks have had few or no basal chest rales.

What treatment is advised?

Samuel L. Immerman, M.D., Philadelphia.

Answer.—Engorgement of the liver with resulting pain and tenderness in the right upper quadrant is an early sign of failure of the right ventricle usually secondary to left ventricular failure with its attendant dyspnea or orthopnea but also found in cases of mitral stenosis, cor pulmonale, myocardial disease and strain acting diffusely on the whole heart, as in acute rheumatic pancarditis and acute tamponade of the heart by pericardial effusion. In the case of persistently recurrent or chronic hepatic congestion and enlargement one finds decreasing pain and tenderness in the right upper quadrant, although the liver may be enlarged to great dimensions.

The most important treatment of acute vascular congestion of the liver is combined therapy with digitalis, mercurial diuretics and low sodium intake. The use of venesection, or preferably blood pressure cuffs to the far extremities, in acute emergency is seldom needed if one seeks to obviate the possibilities of such a condition by prophylactic treatment. This problem in the case of acute right-sided or total cardiac failure is much less serious or common than that of acute pulmonary edema associated with failure of the left ventricle, but a similar dilemma exists as to the relative importance of venous congestion and a state of shock. Venesection would seem to be much less desirable than the cautious use of blood pressure cuffs; and conceivably even the introduction of fluid, preferably blood, in small amounts might help if such a rare emergency should supervene.

BILATERAL CONGENITAL CATARACTS

To the Editor:—Three weeks ago a boy with bilateral congenital cataracts was born. History of German measles during pregnancy is absent and no familial history of cataract occurs. Both parents are apparently in good health. Please discuss newest methods of treatment.

M.D., New York.

Answer.—There may be other noxious agents than German measles which produce bilateral congenital cataract, but as yet only heredity has been confirmed as a cause. Presence or absence of other congenital anomalies in the eye or eyes is naturally of great importance in prognosis. Many infants are operated on during the first year but most authorities prefer to wait until the child is 2 years of age. Secure the best possible result in one eye before the second is touched. Several operations may be needed. Select a competent ophthalmologist, one who has done a good many such operations in babies. The prognosis for vision is good.

SMALLPOX

To the Editor:—I have just treated a patient with smallpox by giving 50,000 units of penicillin intramuscularly every three hours. Penicillin did not seem to affect the eruption as it was taking place, but it did appear to have a profound effect in drying the eruptions and hastening the scaling stage. What are the reports of others using penicillin against smallpox?

Clifton F. West, M.D., Kinston, N. C.

Answer.—A report of an outbreak of smallpox in American military personnel in Japan by Agerty (*New England J. Med.* **237:**305 [Aug. 28] 1947) relates that penicillin was used in amounts varying from 160,000 to 240,000 units a day. No obvious effect on the course of the disease followed penicillin therapy. If the eruption of the skin is secondarily infected with hemolytic streptococci or Staphylococcus aureus, penicillin might control the infection. In brief, penicillin may be useful if a secondary infection of the cutaneous lesions is present but has no influence on the course of smallpox itself.

TINNITUS

To the Editor:—A patient aged 48 has had unilateral hearing since birth. Subsequent to a surgical procedure tinnitus developed and has persisted now for fourteen months. The hearing loss is 15 decibels. Is the nature of the pathologic process known? Is there any worth while form of treatment? Is there a chance that the tinnitus may stop? What is the prognosis for further loss of hearing?

M.D., Connecticut.

ANSWER.—A diagnosis of the type or cause of the hearing loss cannot be made without a complete otologic study, including inspection of tympanic membranes and eustachian tubes and audiometric and tuning fork tests. Treatment of tinnitus is exceedingly unsatisfactory. Nothing can be done unless the tinnitus is due to reversible pathologic changes in the ear, such as occlusion of the eustachian tube.

INNERVATION TRAPEZII

To the Editor:—While sitting behind a patient, if one examines his upper trapezii by pinching or squeezing them between the thumb and index finger of each hand one often observes: (1) a sort of reflex contraction of superficial tissues toward the "pinched" side, so that the nuchal septum is deviated toward that side; (2) the formation of a lump in the superficial tissues over the area examined, sometimes accompanied by crepitation—a sort of contraction of the subcutaneous tissues perpendicular to the muscle and directly under one's fingers: Have these been described before? Please explain and give references.

S. Arana-Soto, M.D., San Juan, Puerto Rico.

ANSWER.—The innervation of the trapezii muscles has been studied in detail in various animals, including monkeys, by K. B. Corbin and Frank Harrison (Proprioceptive Components of Cranial Nerves: The Spinal Accessory Nerve, *J. Comp. Neurol.* 69:315, 1938; Sensory Innervation of Spinal Accessory and Tongue Musculature in Rhesus Monkey, *Brain* 62:191, 1939). They found that the ventral rami of the second, third and fourth cervical nerves contribute sensory fibers to the trapezii muscles, a few from the second, more from the third and all of those from the fourth cervical. These muscles are supplied with proprioceptive fibers whose cells are situated in the dorsal root ganglions. The fibers pass peripherally over the respective cervical ventral rami, finally anastomosing with the accessory nerves before entering the muscles. The authors expressed the belief that it is reasonable to conclude that a similar condition obtains in man.

The phenomena you have observed probably are due to these sensory nerves reflexly stimulating the muscles. Francis Marion Pottenger ("Symptoms of Visceral Disease," ed. 6, St. Louis, C. V. Mosby Company, 1944) discusses various reflexes and trophic changes in the trapezii region, as well as those of the other accessory muscles set in operation by pulmonary diseases and conditions through the upper cervical nerves. He states that the visceromotor, viscerosensory and viscerotrophic reflexes which arise from stimuli originating in the lungs seem to manifest themselves throughout most of the cervical segments but are more pronounced in the third and fourth. They appear as motor and sensory changes in the tissues supplied by the cervical spinal nerves and as trophic changes if the disease becomes chronic. For example, in recent disease of the upper part of the lung the stimuli result in almost constant contraction of the accessory muscles. At first the muscles may sometimes appear enlarged; at other times they present increased prominence due to shortening through contraction. On palpation these muscles feel hard and rigid. However, provided that the stimulation in the lung continues, in due time atrophy occurs in the muscles.

Apparently the signs you have observed are the result of direct stimulation of the sensory nerves of the muscle, which reflexly causes contraction of the part of the muscle involved so as to deviate the nuchal septum to that side and in a similar manner results in reflex changes of the superficial tissues.

VITAMIN E

To the Editor:—Is vitamin E in 100 mg. doses four times a day of value in the treatment of coronary disease?

M.D., Kansas.

ANSWER.—Two years ago vitamin E was recommended by two Canadian physicians as useful in the treatment of heart disease from various causes, including rheumatic, coronary and hypertensive, as well as of congestive heart failure. Since then there has been no carefully controlled clinical series reported, although various clinics have tried this material. Consensus was well expressed at a panel discussion on cardiac therapy at the meeting of the American Medical Association in Atlantic City, N. J., in June 1947, as follows: "Vitamin E is of no value in coronary heart disease, hypertension or rheumatic heart disease. The original claim that it is of benefit can be attributed to ceremonial therapy."

SYRUP OF IPECAC

To the Editor:—Please discuss use of syrup of ipecac in paroxysmal auricular tachycardia. What is the dosage? How quickly does it work and how long does the effect last?

M.D., New York.

ANSWER.—Syrup of ipecac should be reserved for obstinate and severe cases of paroxysmal auricular tachycardia, preferably proved by electrocardiogram as the ipecac produces such disagreeable symptoms. Vomiting is induced as the result of a vagal effect, which is the mechanism responsible for the control of the paroxysms. Dosage of 7.5 to 15 cc. (2 to 4 drachms) is most effective. The effect starts fifteen to thirty minutes after administration and lasts for about half an hour.

DERMATITIS OF EXTERNAL AUDITORY CANAL

To the Editor:—About five years ago the wax in my ears became more abundant and inspissated, resulting in frequent occlusion of the external auditory canal. Two years later itching in the outer end of the canal began, and occasionally acute exacerbations occurred with cellulitis and enlargement of lymph nodes. Eighteen months ago after swimming in a pool at a New York hotel an infection from Aspergillus occurred. This was apparently relieved by the application of "cresatin." Itching and cellulitis was believed to be due to seborrheic dermatitis, as I have pronounced infection of the scalp. Apparently Aspergillus infection did not recur. Recently another fungous infection occluded both ears completely in a matter of two or three days (swimming again!). "Cresatin" was again successfully used. If the cellulitis of the external auditory canals is untreated it recurs frequently and during attacks there drains from the canals serum which sometimes has the odor of unwashed feet. "Monarden" (a salicylic acid, benzoic acid chloromercuri carvacrol preparation, Smith-Dorsey), "pragmatar" (a modified coal tar preparation, with sulfur and salicylic acid, Smith, Kline and French) and other preparations have been used to keep the dermatitis and cellulitis in abeyance. Recently a fungicide containing, among other things, salicylic acid and iodine in an oil base has been used on the advice of a dermatologist. Now he wants to use roentgen radiation and states that my trouble is probably caused by a fungus. Some dermatologists are opposed to the use of roentgen therapy for dermatitis. What should I do? So far nothing seems to have been curative. Are cultures and smears for fungi accurate (when negative) for ruling out a diagnosis?

M.D., California.

ANSWER.—Before any treatment is instituted, the cause of the condition should be ascertained. Repeated cultures and subcultures on Sabouraud's medium may establish a fungous origin. Monilia are often the cause of dermatitis in the external auditory canal. If fungi are found to be the cause, then fungicides are indicated. Some of the newer ones are "salinidol" (contains salicylanilide 5 per cent and "carbowax" 95 per cent: Doak Co., Inc.), "salicylanilide phemerol cream" (Parke, Davis & Company), "desenex" (zincundecate, Wallace & Tiernan Products, Inc.) and "decupryl" (a preparation of undecylenic acid and copper undecylenate, Crookes Laboratories).

If fungus cannot be discovered, then an otologist should examine the canal and tympanum for chronic granulations. If found, these should be appropriately treated. If neither fungi nor chronic granulations are the cause of the condition, then the treatment should be for chronic eczema, such as has already been used to control the attacks. Recurrences may be prevented by refraining from scratching or touching the ears and by treating seborrhea capitis, if present. Roentgen therapy in filtered fractional doses given by a skilled dermatologist may be of value.

BODY ODOR

To the Editor:—An unmarried woman aged 24, complains of a "coal gas" odor about her which she maintains is most persistent while she is engaged in her employment as a bank teller. I find nothing relative to this condition, and she is now under my care for acne. I am trying to rule out any organic basis for her complaints. I have not detected this odor about her, but she states that her co-workers have complained to her and she is afraid of losing her job. All examinations, including an ear, nose and throat examination by a specialist, are negative. She states that this condition has persisted for the last five years.

M.D., Illinois.

ANSWER.—Could it be that a sulfur preparation which this woman is using for her acne is responsible for the odor? If not, one must consider those conditions which are usually credited with causing body odor such as: gas escaping from the bowel without the knowledge of the person; decomposition of sweat, sebum or urine on the skin or clothing; body discharge, as from the ears or vagina, or hyperhidrosis. It is said that certain foods can produce odors, particularly spices like garlic. Nervous influences, especially in hysterical persons, are said to emanate body odors. Occasionally an odor is transferred to the clothing from that of another member of the family whose clothing has been permeated by an odor from material used in an occupation. Finally, in some persons the odor is entirely in the imagination—an obsession or phobia much like acarophobia.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 136, No. 12 | Chicago, Illinois | March 20, 1948

Copyright, 1948, by American Medical Association

COMMON BEHAVIOR DISTURBANCES IN THE FIRST TWO YEARS OF LIFE

BENJAMIN SPOCK, M.D.
Rochester, Minn.

Read Before the Section on Nervous and Mental Diseases at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947

From the Department of Neurology and Psychiatry, the Mayo Clinic, and the Rochester Child Health Project

Significant behavior disturbances in babies are relatively infrequent during the first year of life as compared with the second, mainly because there are relatively few occasions for conflict between mother and infant. On the other hand, anxiety and weeping spells are common in the mother at the start. In our civilization, she may take her first baby home without any previous experience to accustom and reassure her. Prenatal classes are of some value but do not take the place of that everyday familiarity with the live baby which is the lot of young women in cultures more primitive and communal than ours.

A number of pediatricians, psychiatrists and obstetricians have recently become interested in the possibility of making the lying-in period more natural and reassuring. They have felt that the usual practice of relegating babies to a nursery, from which they are brought to their mothers only at intervals, and the tendency to let breast feeding go by default have inadvertently given the inexperienced mother the initial impression that she is of little importance to her baby and that its care can be entrusted only to medical experts. The so-called "rooming-in" arrangement is being experimented with in Detroit and elsewhere. The baby's crib remains in the mother's room, so that she can become familiar with his noises, moods, movements and appetite, and so that she can feed him on the breast when he is hungry, rather than according to the clock. Preliminary reports suggest that the effect is good, not only on mothers and babies but also on fathers. In conventional obstetric arrangements, the father is apt to feel like a rank outsider, a germ carrier from whom the baby must be shielded. In the "rooming-in" arrangement, he, and he alone, is allowed to visit, which allows him to think of himself as an acceptable member of the family at this formative stage of his development.

There has been a growing tendency in the last few years to discard the rigidity of feeding schedules, which in the past has probably done harm in encouraging mothers to become tense and arbitrary. A number of pediatricians are now recommending that the baby be fed when he seems hungry, irrespective of the hour. Although the method has a solemn name, "the self-demand schedule," and sounds newfangled, it is obviously nature's own, which was used by the entire human race until the turn of the century. A better term might be "self-regulated schedule." Surprisingly, or perhaps not so surprisingly, most babies are found to work themselves onto a fairly regular schedule in a short time. "Rooming in" and "self regulation" appear to be of real value in maintaining the mother's self confidence and giving her a relaxed attitude toward her child.

Feeding problems are the commonest ones during the first year in our culture. A few are started in the first weeks of life if the formula prescribed proves too large and if the nurse or mother has been encouraged to be arbitrary. The baby who, every time he falls asleep satisfied, gets the soles of his feet snapped and the nipple stirred vigorously in his mouth begins to lose his enthusiasm for food and to become balky and irritable. If the resistance to feeding becomes well established, it may last for years and have a harrowing effect on the personalities of child and mother.

A commoner time for feeding rebellion is when solid foods are first introduced. A majority of infants, despite their eagerness for calories, are initially doubtful about the first solid food. The taste, the spoon, the consistency, the method of swallowing are all new. Most of these skeptics decide after a few days that the substance is at least nutritious, and they gradually develop more enthusiasm. An appreciable minority, however, become increasingly intolerant as the days go by. If the struggle is kept up, the mother may report, at the end of ten days, that the baby is beginning to refuse his beloved bottle too. This spreading of the battle is a common phenomenon in children's disorders.

Attempts at forced weaning for which the baby is not ready often cause bad feeling. Psychiatrists have emphasized the danger of too early weaning, especially from the breast. But the exact pathogenesis of a weaning disturbance, as seen by the pediatrician, is not a simple matter of earliness or of deprivation of the breast. In the first place, a majority of young infants who are nursing at both breast and bottle show their ignorance of what is theoretically best for them by preferring the bottle. On the other hand, the baby who has been entirely breast fed for the first three or four months of his life is likely, if the breast supply is plentiful, to object violently to letting a rubber nipple pass his lips, and may prefer to starve for several days.

Some bottle-fed babies show a readiness for gradual weaning to the cup in the period between 8 and 12 months of age. They become less eager for the bottle, stop to play with the nipple and take milk readily from the cup. On the other hand, an appreciable number, even though they have taken willingly a little milk from the cup from as far back as 5 months of age, will, as they get to be about 9 months old, bat the cup away suspiciously or, pretending they have forgotten what to do, let all the milk run down the sides of the chin. It would seem as though a shrewdness coming on at this stage of development makes them suspect and fear that the bottle is about to be taken away. These are the babies who are generally devoted to the bottle, eyeing it during the solid part of their meal, stroking it and murmuring to it as they drink the contents to the last drop. Forced deprivation of the bottle at such a phase is likely to produce prolonged refusal to take any milk from the cup, unhappy behavior for a number of days and sometimes a complete hunger strike until the frightened mother gives in.

Breast-fed babies, on the other hand, rarely balk at weaning from breast to cup in the last quarter of the first year. In fact, they tend to wean themselves, nursing for shorter periods and gladly taking increasing amounts from the cup. There appear to be at least two reasons why they are more willing to be weaned than are bottle-fed babies of this age. Breast and cup are less similar than bottle and cup. It is the shift to something similar that an opinionated baby resists in weaning. Another factor is the 9 month old baby's desire to be independent during meals. He is now likely to want to sit up for his spoon feeding and, if he is bottle fed, to take the bottle away from his mother's hands and to drink the whole contents while sitting bolt upright. In other words, the breast-fed baby may prefer to wean himself not so much because suckling has lost its charm, but because he has advanced to the stage where he is impatient in the dependent, cuddled position.

The second year brings pronounced changes in an infant's personality and behavior and calls on the mother for entirely new resourcefulness and adaptability. She has become accustomed during the first year to his automatic cooperation. If she offered a teaspoon of spinach, he opened his mouth as eagerly as for applesauce. Even though he liked it less, he was too hungry to quibble. If it was convenient for her to have him in the playpen, she could put him there, toss him a couple of familiar toys and know that he would play happily. But at about a year he acquires independent locomotion and, with it, a charge of energy that keeps him going all day. He explores constantly, shakes table legs, pulls lamp cords, removes every book from the bookcase and climbs on anything he can reach. His ego is taking definite shape. He senses he is a separate person, entitled to wishes and a will of his own. He early learns to say "No" and uses it on all occasions, even in response to suggestions that appeal to him. He has learned no respect for authority and, when told "No, no" from across the room, is more likely to persist than desist. It seems as though he has a compulsive need to exercise his will power for its own sake.

As he becomes more insistent on his independence from his mother, he simultaneously becomes aware of his dependence. He may cry each time she leaves him alone. If he is allowed freedom to explore in the house, he scrambles back to her at regular intervals for reassurance. In the doctor's office he, who at 11 months was quite unconcerned about examination, now leaps to his feet and, yelling, tries to climb off the table into his mother's arms. He is now likely to be frightened by noisy, moving objects, like vacuum cleaners. Undoubtedly, it is part of his total pattern of emotional development that when he has the ability and the desire to explore away from his mother he also has the instinct to hurry back to her noisily when he meets something strange and potentially dangerous.

A majority of babies at about the age of 1 year show the same exaggerated arbitrariness in appetite that they show in other matters. Probably, the smaller rate of gain in weight and the discomfort of molar teething play a part in the sudden decreases in appetite that occur. But, over and above these, he shows an irritating choosiness. He refuses to touch the vegetable which yesterday was his favorite. He may turn against all his vegetables for weeks, and even months, at a time, or against cereal and his milk. The conscientious mother, sure of the importance of the balanced diet, is tempted to become bossy and insistent. The child's temporary dislikes of certain foods are turned into permanent hates, which often last for years. Certainly, more feeding problems begin during the second year than during any other period. The irritation of the frustrated mother and the balkiness of the child easily spread into other aspects of their relationship.

Psychiatrists, from data gained from older children and adults, have stressed the danger to the child's emotional development of too early and too rigorous toilet training. Pediatric observation would indicate that the earliness at which training efforts are begun is much less important than the reaction of the child and the attitude of the mother during the precarious second year. He is generally opinionated and touchy. He becomes increasingly aware of his bowel function and takes a possessive and proprietary attitude toward it. As he slips off the seat, he turns to admire his movement, sniffs it appreciatively and asks his mother to enjoy it too. If her attitude is overdemanding and intolerant, it is easy to see why she rubs him the wrong way. Actually, few revolts occur in the babies whose movements are naturally regular. They have their movements on the seat right after breakfast, before they have a chance to become impatient. It is the child who is naturally irregular whose mother is tempted to put him on too often and to insist that he stay on too long. The babies who are most prone of all to develop resistance are those who have experienced painfully hard movements. In fact, one painful movement may be enough to create a dread of the toilet that lasts six or eight months. Whatever the cause of the initial resistance, the mother's insistence increases the child's obstinacy, anxiety and guiltiness. When he eventually decides to give in and perform in the right place, he may show anxiety about other forms of dirtiness, too. Suppositories and enemas used after a training struggle has begun are resisted with rage and terror and hasten the character distortion.

This vital phase of ego formation is difficult for parents. They are not prepared by experience or teaching for the drastic changes. Arbitrary doctrines about diet and toilet training invite them into trouble. Small houses and apartments provide too few cubic feet per ego and too few harmless outlets for the expanding personality of the 1 year old child. The small number of children per family encourages parental overconcern. There tend to be too many prohibitions, too many demands and too many clashes. The child's outgoingness is blocked; his progress toward independence is impeded, and his awareness of self is intensified beyond what is ideal.

In the olden days, parents with poor qualities of leadership probably relied most on slaps. But the modern teaching that physical punishment is shameful has deflected them into forms of control such as chronic scolding, prolonged moral disapproval, warnings of the dangerous consequences of misbehavior, even excessive reasoning and overexplanation, which I believe bring about worse distortion of the malleable personality. These influences are manifested by the age of 2 years in tense, anxious, dependent, self-centered children and lay the groundwork for the formation of specific neuroses and character disorders.

Although the pediatrician cannot hope to change the mother's basic nature, I believe that he can give her prophylactic advice that minimizes the clashes. He should explain at the start that the baby will be a better judge than mother or pediatrician of how much he needs at each feeding, warn the mother when starting solids to give the child time to get used to them and advise against weaning until the child shows readiness, even though it is not until the middle of the second year. He can explain, before the child reaches the age of 1 year, that appetite is likely to change and that satisfactory substitutes which the child likes can be found. More pediatricians today are advising mothers to omit all toilet training efforts until toward the end of the second year, when the baby's awareness of bowel function and intense desire to imitate may induce him to think up the idea of going to the toilet himself. At least the mother should be warned against beginning her training efforts until she can exactly predict the timing of the movement, either because of the baby's regularity or because he begins to make some sign of readiness. It is possible to help the parent who is unimaginative or insecure to avoid some of the disciplinary clashes by describing how the house must be arranged so that most breakable objects are removed from reach, and enough harmless ones, like pots and pans and magazines, are left near the floor. Then the house-bound child has enough to occupy him without too many prohibitions. When inhibition is started, the main recourse of the parent should be a brisk, friendly removal of the child from the dangerous or breakable object and distraction to something else. Mothers also need to be urged to take small children outdoors often, to let them out of their carriages in places where they can safely be given some freedom and where they can become accustomed to other children.

We need also experimentation with some sort of guidance nursery or guidance playground where 1 and 2 year old children, too young to be left at nursery schools, could come to play.

ABSTRACT OF DISCUSSION

Dr. Karl M. Bowman, San Francisco: This is an ideal paper for every doctor and every parent to read. It shows that material can be presented in simple language and yet be of the highest scientific value; that is something which members of the medical profession, particularly psychiatrists, have not sufficiently learned. It illustrates that a great deal of fine research work can be done when working at a clinical level. Those of us in psychiatry would agree to practically all the things advocated here. This study represents the cooperative type of research in various fields of medicine, and the integration of psychiatry with pediatrics, which many psychiatrists have felt would be valuable for pediatrics and for psychiatry. Pediatrics has suffered from the laying down of rules about feeding, toilet training and the like; if the child did not conform, the fault was his, just as it is in certain types of psychotherapy. At one time, it was the patient's fault if he could not conform to the orthodox psychoanalysis, whereas now, in the recent book by Alexander and French, it is suggested that the treatment should fit the individuality of the patient, unless one is to force a specified type of treatment on the patient. I am particularly in favor of the idea of giving the poor father a little more ego help in this situation, for the common attitude in the hospital is that perhaps the father has had some responsibility for the child but that from now on he is less than nothing. There are two questions that I should like to raise. The first concerns this concept that the child resists being shifted from one thing to another which is similar but accepts more readily something dissimilar. Does Dr. Spock feel that this is a universal rule which would apply to all types of childhood training? If so, it is certainly very important. The statement about scolding and its pernicious effect I endorse heartily, and I should agree both with the chairman and with the author that one can be, incidentally, more brutal to a child with certain types of scolding and tongue lashing than with an ordinary spanking or slapping, and do the child's personality infinitely more harm.

Dr. Frederick H. Allen, Philadelphia: I shall confine my comments to two points brought out in this paper. The first emphasis that Dr. Spock places on the plan of bringing the infant into a more intimate relation with the mother from birth, I think, represents an important departure in this bacteriologic age, in which we have stressed a 100 per cent culture-pure atmospere for a child and some of the important emotional needs of the child and the parent have been neglected. Here, it has been recognized that the infant is a part of the family unit from the very moment of his birth. Here, he emerges as a person, an emergence that can never take place in isolation. His needs from the first moment of living bring him into relation with those who have to satisfy those needs. He gets his first experience in living not in the isolation of the nursery, but in the more intimate connection with the mother, who, at the same time, is getting her first experience with this particular child in fulfilling the important role of being a mother. This procedure recognizes that the mother is really the important person to take charge of the child from the very beginning. The second point is the emphasis that Dr. Spock places on the emergence of the negative in the child toward the end of the first year, and in a somewhat exaggerated way in the second year. Such behavior is the evidence of the emergence of a separate person, who is experiencing the first sense of his power. He exercises it in the very ways that Dr. Spock has so clearly stated. The sensitive understanding of this negative behavior, and the realization of its importance, reflected in the way it is handled, can determine the difference between a child who has a healthy way of asserting himself and one who has to continue and develop unhealthy patterns of saying no. This behavior presents a difficult dilemma for a parent, who must put limits and direction into the life of the child while allowing him some freedom to feel negative. The autocratic parent may try to wipe out this apparent rebellion, and the indulgent or timid parent may fail to provide the support a child needs as he is discovering what he can or cannot do. Both extremes represent a failure to understand the importance of the negative in a child's behavior. It is important that Dr. Spock brought out the relation between dependence and independence and to emphasize that independence really grows out of dependence; dependence is not a phase to rush a child over quickly in the urge to shove him into independent living. The healthy aspect of independence means just what the word itself signifies; independence is always in relation to dependence.

Dr. Benjamin M. Spock, Rochester, Minn.: I am glad that Dr. Bowman caught me in that generalization about babies always resisting more strongly the shift to something similar than to something different. I meant it only in regard to weaning behavior. The bottle-fed baby who refuses milk from a cup will often take it from a spoon. The baby who refuses milk from his regular white cup may take it if it is put into a red cup or if it is changed from warm to ice cold.

LEPTOSPIRAL INFECTIONS

A Survey

JOSEPH G. MOLNER, M.D., M.P.H.
KARL F. MEYER, M.D., Ph.D.
and
HERBERT A. RASKIN, M.S.P.H.
Detroit

From the literature on leptospiral infections in the United States, Weil's disease (spirochetal jaundice) and canicola fever,[1] it would appear that these diseases have been recognized as a problem in preventive as well as curative medicine, as prophesied editorially in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION ten years ago.[2] The research devoted to this subject since Weil made his clinical observations in 1886 [3] has resulted in much valuable information. The spirochete Leptospira icterohaemorrhagiae was established as the causative organism of Weil's disease in 1915.[4] Laboratory methods for its diagnosis were introduced in 1922.[5] The clinical manifestations, pathology, animal reservoirs, epidemiology and geographic distribution have been extensively discussed in the literature.[6] A comparable, but less complete, elaboration of detail is also available for canicola fever.[7]

Despite this wealth of data, however, leptospiral infections still challenge the public health officer, the clinician, the bacteriologist, the laboratorian, the veterinarian—in fact, the entire field of medical science. It is the purpose of this survey to evaluate the all-important role of these infections among the acute febrile diseases and to indicate what steps need be taken to meet this problem.

Although leptospiral infections have been reported from practically every country in the world,[7a] the number of cases in the United States appears to be disproportionately low, especially when compared with the incidence in Continental Europe and Great Britain. In the Netherlands, for example, the diagnosis was established in 808 cases between 1929 and 1937.[7a] In France, 263 proved cases were found in the interval from 1924 to 1932, and there were at least 248 cases in Great Britain between 1924 and 1938.[8] In contrast, examination of the medical literature of the United States revealed only 228 cases reported in this country.[9] Since Ashe and associates [10] have shown that North Americans possess no particular immunity to these infections, and since, as will be shown, there is no evidence of less exposure to leptospiras in the United States, such a discrepancy would seem to be due to failure to recognize or to report cases.

The reason for this failure is twofold. First, the clinical manifestations of these conditions are not well enough known to be considered in the differential diagnosis of acute febrile diseases. Second, and perhaps of greater importance, is the fact that the diagnosis is almost entirely dependent on laboratory findings, and there are few laboratories in the United States adequately equipped to do leptospiral agglutination tests. As a matter of fact, the recent work of Ward and Turner,[11] in Baltimore, and of Tiffany and Martorana,[12] in New York, supports the contention of most authors that leptospiral infections are not difficult to detect if one looks for them. The findings in the Detroit survey, as will be discussed, further support these observations.

It is most likely that only the striking, easily recognized severe forms, with their characteristic jaundice, hemorrhage and renal disorders, have been diagnosed and reported. It is known that mild forms also occur which undoubtedly far outnumber the severe ones. Therefore, since only about one-half the patients with these infections have jaundice, as originally predicated by Weil himself and emphasized by subsequent authors, it is readily understandable that unless physicians are aware of the diseases many cases will pass unrecognized. It is interesting to note that despite the availability of specific laboratory service in the Detroit area, in all 78 cases the diagnosis was made either in the second stage of the disease [13] by agglutination tests or at autopsy.

If earlier diagnosis and more frequent recognition of leptospiral infections are to be accomplished, the icteric and hemorrhagic features must yield to the epidemiologically more important first stage, characterized by sudden onset, severe myalgia, especially in the calves, fever, chills and conjunctival injection. Polymorphonuclear leukocytosis is almost constantly present. Confirmation of diagnosis by laboratory procedures may include blood culture, animal inoculation and serum agglutination tests. The last is considered to be the most dependable means available.

Before discussing the series of 78 cases in the Detroit area, certain characteristics of leptospiral infections reported in the United States may be noted. The first case of leptospirosis in the United States was reported by Stimson in 1905.[14] He observed an organism, which he called "Spirocheta interrogans," in the tissues of a patient who died during an outbreak of yellow fever. Although Stimson failed to recognize the organism, Sellards [15] in 1940 identified it as Lept. icterohaemorrhagiae. Wadsworth and associates [5] in 1922 reported a case of Weil's disease occurring in one of his laboratory assistants, and since that time 228 cases of leptospiral infections have been reported in the medical literature of the United States—222 of Weil's disease and 6 of canicola fever. Tables 1, 2 and 3 present a summary of these cases by geographic location and date of onset.

---

[1] Other leptospiral organisms of pathogenic importance to man have never been reported in the United States, viz., Leptospira grippotyphosa, Leptospira hebdomidis and Leptospira autumnalis.

[2] Spirochetal Jaundice, editorial, J. A. M. A. **109:** 1128 (Oct. 2) 1937.

[3] Weil, A. D.: Arch. f. klin. Med. **39:** 209, 1886.

[4] Inada, R.; Ido, Y.; Hoki, R., and Kaneko, R.: J. Exper. Med. **23:** 377, 1916. Noguchi, H.: ibid. **20:** 95, 1919.

[5] Wadsworth, A.; Langworthy, V.; Stewart, F.; Moore, A., and Coleman, M.: Infectious Jaundice Occurring in New York State: Case of Accidental Infection of Human Subject with Leptospira Icterohaemorrhagiae from Rat, J. A. M. A. **78:** 1120 (April 15) 1922

[6] For the most recent complete résumé of all aspects of these diseases the reader is referred to Bertucci (Am. J. M. Sc. **209:** 86, 1945).

[7] (*a*) Walch-Sorgdrager, B.: Bull. Health Organ., League of Nations **8:** 143, 1939. (*b*) Meyer, K.; Eddie, B., and Anderson-Stewart, B.: Proc. Soc. Exper. Biol. & Med. **36:** 17, 1938. (*c*) Tievsky, G., and Schaefer, B.: M. Ann. District of Columbia **13:** 11, 1944. (*d*) Rosenbaum, H. D.: Canicula Fever: Case Report and Review of the Literature, Arch. Int. Med. **78:** 531 (Nov.) 1946.

[8] Bruno, F. E.; Wilen, C. J. W., and Snavely, J. R.: Spirochetal Jaundice: Report of Fifteen Cases, Including Two Cases of Leptospira Canicula Infection, J. A. M. A. **123:** 519 (Oct. 30) 1943.

[9] Leptospiral infections are not generally viewed by members of the medical profession as "reportable" diseases, even though so designated by law in many states. Thus, data are not available in official compilations of vital statistics. The effect of reporting on "incidence" is illustrated by the experience in the Netherlands.[7a] Whereas in the three year period immediately preceding compulsory notification of these diseases there were reported 69 cases, such reports reached the total of 481 in the following three years.

[10] Ashe, W., Pratt-Thomas, H., and Kumpe, C.: Medicine **20:** 145, 941.

[11] Ward, T., and Turner, T.: Am. J. Hyg. **35:** 122, 1942.

[12] Tiffany, E., and Martorana, N.: Am. J. Hyg. **36:** 195, 1942.

[13] This stage is characterized by jaundice, hemorrhage and evidence of renal damage. In the absence of the second stage, the patient enters on convalescence.

[14] Stimson, A.: Pub. Health Rep. **22:** 541, 1907.

[15] Sellards, A.: Tr. Roy. Soc. Trop. Med. & Hyg. **33:** 545, 1940.

A review of these tables reveals many interesting facts. It is apparent that the period from 1935 to 1941 represents one of increased case finding, reflecting a general interest in these infections at that time, both in this country and abroad.[16] Cases have been reported from twenty-three states and the District of Columbia, but over 70 per cent of the cases occurred in only nine states. The seasonal distribution of these cases (table 3) compares favorably with reports from other countries, 60.6 per cent occurring in the four month period between June and September. Of the 228 reported cases, in only 178 was the end result of the illness discussed. In this series the fatality rate was 24.7 per cent.

TABLE 1.—*Cases of Leptospiral Infections Reported in the Literature of the United States According to Date of Onset**

	No. of Cases		No. of Cases
1905	1	1934	5
1922	2	1935	10
1923	0	1936	5
1924	2	1937	14
1925	1	1938	23
1926	3	1939	40
1927	1	1940	33
1928	1	1941	12
1929	2	1942	6
1930	0	1943	1
1931	1	1944	17
1932	2	1945	7
1933	0		

* A total of 189 cases in which date of onset was procurable.

TABLE 2.—*Cases of Leptospiral Infections Reported in the Literature of the United States According to Geographic Location*

	No. of Cases
Louisiana *	33
New York †	32
Virginia ‡	18
California §	17
Maryland ‖	17
Alabama ¶	14
Pennsylvania #	13
Ohio **	13
Georgia ††	10
Colorado ‡‡	7
Rhode Island §§	7
Massachusetts ‖‖	7
District of Columbia ¶¶	7
New Jersey ##	6
Texas ***	4
Wisconsin †††	3
Florida ‡‡‡	3
North Carolina §§§	2
West Virginia ‖‖‖	2
Missouri ‖‖‖	2
Connecticut ¶¶¶	2
Michigan ‡‡‡	1
Nevada ###	1
Oklahoma ****	1
Location unspecified ††††	8
Total	228

* (a) Stimson.[14] (b) Durand, J.: New Orleans M. & S. J. 93:34 1942. (c) Senekgle, H.: J. A. M. A. 120:5, 1944. (d) Dobbs, O., and Jarrell, M.: New Orleans M. & S. J. 98:458, 1946.

(a) Packchanian 23b. (b) Wadesworth: Langworthy, Stewart. Moore and Coleman.[5] (c) McDowell, E.: New York State J. Med. 25:19 1925. (d) Cusbinz E. J.A.M.A. 39:1041, 1927. (e) Glotzer, S.: J. A. M. A. 110:2143, 1938. (f) Farrell, E.: New York State J. Med. 39:1969, 1939. (g) Elton, N.: Am. J. Clin. Path. 9:219, 1939. (h) Tiffany and Martorana.[12] (i) Stiles, W., and Goldstein, J.: J. A. M. A. 131:1271, 1946.

‡ (a) Packhanian.†[a] (b) Larson, C.: Pub. Health Rep. 56:1650, 1941. (c) Bloom, N., and Walker, H.: Virginia M. Monthly 68:192, 1941. (d) Reid, J., and Holt, R.: ibid. 68:371, 1941. (e) Mulholland, H., and Bray, W.: J. A. M. A. 90:1113, 1928. (f) ibid Internat. Clin. 4:122, 1937.

§ (a) Larson.‡[b] (b) Kilgore, E.: Tr. A. Am. Physicians 52:116, 1937. (c) Meyer, Stewart-Anderson and Eddie.[22] (d) Ball, H.: Am. J. Clin. Path. 3:283, 1933.

‖ (a) Packchanian†[a] (b) Larson.‡[b] (c) Goldberg, H., and Dovens, E.: Bull. Johns Hopkins Hosp. 68:112, 1941. (d) Ward and Turner.[11] (e) Rathbun, H., and Waghelstein, J.: Ann. Int. Med. 15:295, 1941.

¶ Lester, B.; Denison, B., and Tate, G.: South. M. J. 35:325, 1942.

# (a) Packhanian.†[a] (b) Larson.‡[b] (c) Davis, P., and Davis, M.: Ann. Int. Med. 16:569, 1942. (d) Kramer, D.: Pennsylvania M. J. 45:1298, 1942. (e) White, J., and Prevost, J.: Ann. Int. Med. 15:207, 1941 (f) Havens, W.; Bucher, C., and Reimann, H.: J. A. M. A. 116:289, 1941. (g) Hayman, J., and Lynch, F.: Am. J. M. Sc. 173:80, 1927. (h) Sailer, J.: ibid. 170:332, 1925.

** (a) Larson.‡[b] (b) Deubel, H.: Ohio State M. J. 37:837, 1941. (c) Jentgen, L.: ibid. 37:443, 1941. (d) Ashe, Pratt-Thomas and Kumpe.[10]

†† (a) Larson.‡[b] (b) Sheldon, W.: Arch. Int. Med. 75:119, 1945.

‡‡ Gaines, A., and Johnson, R.: Arch. Int. Med. 60:817, 1937.

§§ Laskey, H.: Rhode Island M. J. 22:135, 1939.

‖‖ (a) Packhanian.†[a] (b) Larson.‡[a] (c) Jeghers, H.; Houghton, J., and Foley, J.: Arch. Path. 20:447, 1935.

¶¶ (a) Packhanian.†[a] (b) Manchester, Larson and Thomas.[23d] (c) Towler, H., and Walker, J.: J. A. M. A. 89:86, 1927. (d) Tlevsky and Schaefer.[7c]

## (a) Packhanian.†[a] (b) Larson.‡[b] (c) White and Prevost.#[e] (d) Sailer.#[h]

*** (a) Rosenbaum.[7d] (b) Little, O.: Texas State J. Med. 32:305, 1936.

††† Larson.‡[b]

‡‡‡ Currens, J., and Woodward, R.: South. M. J. 38:811, 1945.

§§§ (a) Leptospirochetosis Ictero-hemorrhagica (Weil's Disease), case reports, North Carolina M. J. 7:75, 1946. (b) Thomas, W., and Stringfield, P.: ibid. 7:254, 1946.

‖‖‖ Packhanian.†[a] †[a]

¶¶¶ (a) Larson.‡[b] (b) Blake, F.: New England J. Med. 223:361, 1940.

### Packhanian.†[a]

**** Bates, C., and Hartnett, W.: J. Oklahoma M. A. 39:105, 1946.

†††† (a) Editorial, J. Am. Vet. M. A. 108:166, 1946. (b) Lorenz, G.: U. S. Navy M. Bull. 42:560, 1944.

TABLE 3.—*Cases of Leptospiral Infections Reported in the Literature of the United States According to Month of Onset**

	No. of Cases		No. of Cases
January	6	July	17
February	7	August	21
March	5	September	21
April	2	October	8
May	7	November	9
June	15	December	6

* A total of 127 cases in which month of onset was procured.

Although the 78 cases of leptospiral infection in the Detroit area[17] represent over one-fourth the total number of cases reported in the United States, this need not imply an increased incidence in this area. It is probably indicative of a high degree of interest motivated by the availability of complete, adequate and specific laboratory facilities in Detroit.[18] Thus, the diagnosis was established in many clinically and epidemiologically suspected cases which undoubtedly would otherwise have been missed.

Despite the apparent awareness of these diseases and the immediate availability of laboratory aid, jaundice developed in all 78 cases. As a matter of fact, it has been repeatedly stated that jaundice was the lead that brought these diseases to differential diagnosis and the accessibility of laboratory agglutination tests, dark field examination, cultures and animal inoculation established the diagnosis. In view of the opinion previously stated that in only about one-half the cases of these infections is jaundice present as a clinical entity, it is obvious that even the relatively large incidence reported from this area is still a significant understatement of the facts.

It should be noted (table 4) that this series of 78 cases includes only proved cases of leptospirosis, verified by an agglutination titer of diagnostic significance (1:300 +) or by autopsy. Many cases in which the diagnosis was based on clinical observation without laboratory confirmation are not included. Thus, it may be assumed that had laboratory examination been made in these instances the number of cases reported would have been appreciably increased.

EPIDEMIOLOGY

Age and Sex Incidence.—Because of an occupational predisposition, these infections would seem to be most

---

[16] It was usual to find that the first case reported in a given area was followed by publication of additional cases.

[17] Of the cases reported in the Detroit area, 13 have been previously published. Molner and Kasper,[20a] Molner and Meyer,[23c] Martmer.[20b] Clapper, M., and Myers, G. B., Clinical Manifestations of Weil's Disease with Particular Reference to Meningitis, Arch. Int. Med. 72:18 (July) 1943. Gordon, W. H., and Feldman, N.: M. Rec. 51:209, 1940.

[18] The Detroit Department of Health has had such facilities available since 1937 in its own laboratory and in cooperation with the National Institute of Health, Washington, D. C., and the George William Hooper Foundation, University of California.

TABLE 4.—*Cases of Leptospiral Infections in the Detroit Area*

Case No.	Sex	Age	Onset of Illness	Outcome of Illness	Agglutination Reaction: Lept. Icterohaemorrhagiae	Agglutination Reaction: Lept. Canicola	Exposure to Leptospiras
1	M	46	July 1937	Recovery	1:30,000	—	Poultry worker
2	M	16	June 1938	Recovery	1:3,000	1:300	Caddy; waded in Rouge river; pet dog had positive agglutination reaction to Lept. icterohaemorrhagiae (1:100,000)
3	M	34	November 1938	Fatal	1:10,000	—	Poultry worker
4	M	17	August 1938	Recovery	1:30,000	—	Moved wet lumber contaminated with rat urine; waded in Clinton river
5	M	38	October 1938	Recovery	1:10,000	—	Dug cesspool in trailer camp, wading in Fox creek, a sewer outlet
6	M	3	January 1938	Fatal	1:30,000	—	Pet dog ill with Weil's disease; neighborhood rats positive agglutination reaction to Lept. icterohaemorrhagiae
7	F	14	March 1938	Recovery	1:20,000	—	Unknown
8	M	32	February 1938	Recovery	1:30,000	—	Poultry worker
9	M	29	November 1939	Recovery	1:30,000	1:100	Poultry worker
10	M	46	September 1939	Fatal	1:30,000	—	Poultry worker
11	M	27	June 1939	Fatal	1:30,000	—	Poultry worker
12	M	49	November 1939	Fatal	1:300	—	Set and handled traps in rat-infested beer garden
13	M	55	December 1940	Recovery	1:100,000	1:100	Poultry worker; home also infested
14	M	21	January 1940	Recovery	1:30,000	1:10,000	Poultry worker
15	M	50	October 1940	Fatal	1:1,000	1:300	*Plumber; frequent basement jobs; also trapped rats at home*
16	M	47	June 1940	Recovery	1:30,000	—	Trapped rats at home; heavy infestation of food, etc.
17	M	41	May 1941	Recovery	1:30,000	1:300	Home infestation; rat bite 6 wk. previously
18	M	46	January 1941	Recovery	1:10,000	1:300	Poultry worker
19	M	64	February 1941	Fatal	1:30,000	—	Unknown
20	M	39	November 1941	Recovery	1:100,000	1:1,000	Washed automobiles in rat-infested garage
21	M	37	November 1941	Recovery	1:100,000	1:100	Junk collector; killed rats in alley; constant contact
22	M	51	June 1941	Recovery	1:1,000	1:30	.partment; resides in "flophouse"
23	M	52	November 1941	Recovery	1:100,000	1:1,000	*rats also found in bedroom*
24	M	39	August 1941	Recovery	1:100,000	1:100	n rat-infested garage; home infested: in food, etc.
25	M	57	August 1941	Recovery	1:10,000	1:300	Fish market worker; sets and cleans traps
26	M	7	July 1941	Recovery	1:100,000	1:100	Swimming in Rouge river
27	M	33	December 1941	Recovery	1:100,000	1:1,000	Worked in rat-infested packing room in bottling works
28	M	40	December 1941	Recovery	1:100,000	1:1,000	Poultry worker
29	M	38	May 1941	Recovery	1:800	1:200	Poultry worker; pet dog killed rats, ill
30	M	47	June 1942	Fatal	1:30,000	—	Ground wire man, frequently worked in alleys
31	M	46	January 1942	Fatal	1:30,000	1:30	Alley picker; *storeroom infested with rats*
32	M	50	December 1942	Fatal	1:30,000	—	Resided in "flophouse"
33	M	38	September 1942	Recovery	1:30,000	—	Poultry worker
34	M	33	August 1942	Recovery	1:30,000	1:100	Fish market worker
35	M	31	September 1942	Fatal	1:30,000	—	Poultry worker
36	M	18	May 1942	Recovery	1:30,000	1:100	*Frequently played in alley*
37	M	46	August 1942	Recovery	1:30,000	1:10,000	Porter in rat-infested beer garden
38	M	28	July 1942	Recovery	1:100,000	1:2,000	Alley picker; resided in "flophouse"
39	M	51	March 1942	Recovery	1:30,000	1:3,000	Poultry worker
40	M	39	August 1942	Recovery	1:30,000	1:100	Fish market worker
41	M	23	March 1942	Recovery	1:30,000	—	Home and neighborhood infested with rats
42	M	30	October 1942	Fatal	—	1:10,000	Dog kennel in yard; numerous rats
43	M	39	October 1942	Fatal	1:300	1:100	Unknown
44	M	44	October 1943	Recovery	1:30,000	—	Poultry worker
45	F	35	March 1943	Recovery	1:1,000	—	Neighborhood and home infested
46	M	45	August 1943	Fatal	1:1,000	1:10	Unknown
47	M	49	January 1943	Fatal	1:30,000	—	Pet dog positive agglutination reaction to Lept. icterohaemorrhagiae
48	M	28	July 1943	Fatal	1:3,000	1:30	Neighborhood and home infested
49	M	26	August 1943	Fatal	1:10,000	—	Unknown
50	M	9	November 1943	Recovery	1:30,000	—	Neighborhood and home infested; scratched by sick cat
51	M	55	July 1943	Fatal	Autopsy	..	*Factory tunnel protection, job site and home infested;* three cats ill; pet dog killed rats
52	M	31	August 1944	Fatal	Autopsy	..	Resided in "flophouse"
53	M	57	September 1944	Recovery	1:30,000	1:30	Launderer in slaughterhouse; dirty clothes left overnight
54	M	59	July 1944	*Fatal*	*1:1,000*	1:30	*Plumber; frequent jobs in basements*
55	M	54	March 1944	Fatal	1:30,000	—	Resided in old rat-infested barn in **city** food prepared here
56	M	41	August 1944	Fatal	1:1,000	—	Home infested; "scratched while in bed"
57	M	47	October 1944	Recovery	1:30,000	1:300	Junk dealer; alley collection
58	M	46	May 1944	Fatal	Autopsy	..	Cook in rat-infested building
59	M	37	November 1944	Fatal	1:30,000	—	Dog ill from rat bite
60	M	39	September 1944	Recovery	1:30,000	1:1,000	Tanner; dead rats found in vats
61	M	18	November 1944	Recovery	1:30,000	—	Cleaning drugstore basement; porter
62	F	26	September 1944	*Fatal*	1:300	1:30	Home infestation
63	M	50	May 1944	Fatal	1:300	—	Unknown
64	F	49	October 1944	Fatal	1:10,000	1:30,000	Poultry worker
65	M	40	June 1944	Fatal	Autopsy	..	Unknown
66	M	44	March 1944	Fatal	Autopsy	..	Home and job site at foundry infested
67	M	34	November 1945	Recovery	—	1:1,000	Cement finisher, basement work; home infested
68	M	43	October 1945	Recovery	1:1,000	1:1,000	Poultry worker
69	F	29	September 1945	Recovery	1:300	1:10,000	Dishwasher
70	M	54	March 1945	Fatal	1:10,000	—	Contractor, building basements, sidewalks, etc.
71	M	56	August 1945	Recovery	1:3,000	1:1,000	Poultry worker
72	M	43	March 1945	Recovery	1:3,000	1:30,000	Slaughterhouse worker
73	M	41	February 1945	Fatal	1:800	1:1,000	*Pet dog ill 2 wk. prior to patient's onset*
74	M	21	September 1945	Recovery	1:1,000	1:10,000	Slaughterhouse worker
75	M	53	January 1946	Recovery	1:10,000	—	Plumber, frequent jobs in basements
76	M	49	January 1946	Recovery	1:10,000	1:300	Walked in rat-infested alley in bare feet
77	M	45	October 1946	Recovery	1:1,000	—	Fish cleaner and peddler
78	M	24	April 1946	Recovery	1:1,000	—	Slaughterhouse worker

prevalent among men; and, indeed, such was the case in this series (table 5). Among the 78 cases reported, 73 of the patients were male (93.4 per cent) and only 5 female. The age distribution of these cases provides further evidence of an occupational relationship. It may be noted that 89.7 per cent of the cases occurred in the employable age groups over 20 years of age. A similar age-sex distribution was found to exist among the reported cases in the United States.

TABLE 5.—*Cases of Leptospiral Infections in the Detroit Area: Distribution by Age Groups*

Age Group	No. of Cases	Per Cent, Total
All ages	78*	100.0
Under 10	3	3.8
10 to 19	5	6.4
20 to 29	10	12.8
30 to 39	20	25.6
40 to 49	24	30.8
50 to 59	15	19.2
60 plus	1	1.3

* The series includes 5 female patients, aged 14, 26, 35, 59 and 49.

Seasonal Aspects.—Leptospiral infections generally show no definite seasonal variation, although many authors report a higher incidence between June and November, the largest number occurring in July, August and September. Such reports have usually been based on the work of Walch-Sorgdrager,[7a] of the Netherlands. In the United States, as previously indicated, cumulative reports show a larger proportion of cases in the months of June through September. However, in the Detroit series this was not so. Table 6 shows the appearance of sporadic cases throughout the year, except for an almost imperceptible increase during the period from August through November.

TABLE 6.—*Leptospiral Infections in the Detroit Area: Distribution by Month of Onset*

Month	No. of Cases	Per Cent, Total
Total	78	100.0
January	7	9.0
February	3	3.8
March	8	10.3
April	1	1.3
May	5	6.4
June	7	9.0
July	5	6.4
August	11	14.1
September	8	10.3
October	9	11.5
November	10	12.8
December	4	5.1

Fatality Rate.—As was previously stated, the fatality rate for cases reported in the United States literature is approximately 25 per cent, whereas among the 78 cases in the Detroit area there were 31 deaths, a rate of 39.7 per cent. Variations in virulence and susceptibility[19] may explain the difference between the two rates. However, it has been indicated that the Detroit series represents only severe forms of leptospiral infections, forming a group in which a high fatality rate would be expected.

All authors agree that most of the known infections with Lept. icterohaemorrhagiae come from direct contact with the excreta of rats; recent evidence indicates that dogs are susceptible to this infection from contact with rats and may act as an intermediary between the rat and man.[20] These animals carry the organisms the epithelium of the renal tubules and excrete them with the urine. Soil, food and water so contaminated can become potent sources of infection.

Rats from all parts of the world have been examined, and as high as 48 per cent of the rats examined have been found to be vectors of Lept. icterohaemorrhagiae.[21]

Lept. canicola produces a disorder in dogs that resembles human icteroid infections: and Schuffner,[24] In 1938, Meyer and associates[22] reported renal leptospiral infections in 16 per cent of rats from the Detroit area and a sample survey conducted by the Detroit Department of Health in 1939 showed that about 25 per cent of the rats in this area were carriers of the organism. Positive serum agglutination reactions in dogs have been reported from many areas of the United States, with rates as high as 38.1 per cent.[23] Walch-Sorgdrager[7a] and Meyer and associates[7b] were able to isolate Lept. canicola from persons with an infection resembling Weil's disease. Presumably, Lept. canicola is a canine infection transmissible to man through close contact with the dog.

Most cases of leptospiral infections reported from all over the world show a close association with rats, dogs or their infected excreta, usually in moist, damp or wet environments. In other cases the disease has been contracted while swimming or bathing or from accidental immersion in polluted bodies of water. Certain occupations show an increased degree of exposure to these organisms, and Stiles and associates[20c] discussed these diseases as a compensable occupational hazard. The cases reported from the Detroit area show the same epidemiologic features.

TABLE 7.—*Leptospiral Infections in the Detroit Area: Summary by Manner of Exposure to Leptospiras*

Occupational exposure	49
Poultry worker	18
Slaughterhouse worker	5
Alley worker *	5
Fish house worker	4
Porter	4
Plumber	3
Cement worker	2
Auto washer	2
Packing room	1
Factory tunnel protection	1
Tanner	1
Cook	1
Dishwasher	1
Foundry	1
Neighborhood and residence infestation	12
Accidental immersion in water	4
Pet dog	4
Accidental contact in alley	2
Unknown	7

* These include rag picker, alley picker, junk peddler and ground wireman.

---

[19] Strong, R., in Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases, ed. 6, Philadelphia, The Blakiston Company, 1942, vol. 1, p. 389.

[20] (*a*) Molner, J. G., and Kasper, J. A.: Outbreak of Jaundice in Detroit: Preliminary Report, J. A. M. A. **110**: 2069 (June 18) 1938 (*b*) Martmer, E.: J. Pediat. **14**: 48, 1939. (*c*) Stiles, W. W., and Sawyer, W. A.: Leptospiral Infection (Weil's Disease) as an Occupational Hazard, J. A. M. A. **118**: 34 (Jan. 3) 1942. (*d*) Alston, J., and Brown, H.: Proc. Roy. Soc. Med. **30**: 741, 1928; Lancet **1**: 569, 1937. (*e*) Raven, C.: J. Infect. Dis. **69**: 131, 1941.

[21] Walch-Sorgdrager.[7a] Meyer and others.[7b] Ido, Y.; Hoki, R.; Ito, H., and Wanti, N.: J. Exper. Med. **26**: 341, 1917. Larson, C.: Pub. Health Rep. **58**: 949, 1943.

[22] Meyer, K.; Stewart-Anderson, B., and Eddie, B.: Am. J. Pub. Health **29**: 347, 1939.

(*b*) Packanian, A.: Pub. Health Rep. **56**: 2145, 1941. (*c*) Meyer and others.[22] (*d*) Manchester, B.; Larson, C., and Thomas, L.: M. Ann. District of Columbia **13**: 133, 1944. (*e*) Molner T and Meyer, K.: Am. J. Pub. Health **30**: 509, 1940 (*f*) Raven.[20e]

[24] Schuffner, W.: Roy. Soc. Trop. Med. & Hyg. **38**: 7, 1934.

Table 7 is a summary of the cases reported in this area grouped according to the manner of exposure to the leptospira, as determined by epidemiologic investigation of each case by the staff of the Detroit Department of Health. With the exception of the 7 cases of unknown exposure (table 4), in every instance there was found the characteristic contact with rats and/or dogs. The emphasis placed on occupational exposure is evident here in the fact that 49 persons (62.7 per cent) had been so exposed. Each of these patients gave a history of rat infestation of his job site. In addition, 9 persons also gave a history of rat infestation of their place of residence and residential neighborhood, thus presenting a dual possibility of exposure to the organism. The predominance of poultry workers among the first patients whose disease was diagnosed in this area led to an interesting experiment conducted by us in which leptospiras were discovered on the work tables of these establishments.[25]

In all the cases in which rat-infested homes were reported, contamination of food, presence of rats in bedrooms and bathrooms, handling of rat traps and carcasses and other sources of exposure were indicated (table 4). In 3 of the cases in which pet dogs were handled, the dogs showed positive agglutination reactions, while in a fourth the dog became ill after a rat bite. In the last case, rats trapped in the neighborhood gave positive agglutination reactions, and the organism was demonstrated in macerated specimens of the kidneys. Contact with pet dogs was also a possible source of exposure in 4 additional cases.

In the cases in which exposure apparently resulted from accidental immersion in polluted water, rats trapped in the immediate area were studied and leptospiras were demonstrated in each case. Of the 7 cases with unknown history, 6 were fatal, with death intervening before any epidemiologically valid history could be obtained. In the remaining case (7, table 4) no definite exposure to either rats or dogs was revealed.

Thus far, the epidemiologic factors of age, sex, seasonal variation and manner of exposure to leptospiras have been discussed. It has been indicated that, with only minor variations, the cases in the Detroit area were similar to those reported elsewhere in the United States and other parts of the world. But with further correlative analysis of the agglutination reactions and the manner of exposure to leptospiras (table 4), certain questions arise relative to the differential diagnosis of infections with Lept. icterohaemorrhagiae and Lept. canicola and the epidemiologic relationships of these organisms.

Clarification of the relationship of Lept. icterohaemorrhagiae and Lept. canicola has yet to be determined. Various conflicting factors must be reconciled. Some authors claim a strong cross agglutination factor between the two organisms,[7a,c] while others (Rosenbaum [7d]) consider that only a mild coreaction exists.[26] Further, the effects of various strains of the organisms, their antigenic qualities and the potential production of antibodies require further study. In addition, the time of withdrawal of serum during the course of illness also greatly complicates the differential diagnosis.

At first it was believed that Lept. canicola was merely a variant of Lept. icterohaemorrhagiae. Morphologically, even with the electron microscope,[27] the two organisms appear identical. At present, however, it is generally agreed that leptospirosis canicola represents a distinct disease in that it varies from typical Weil's disease immunologically, in mortality rate, in its virulence in test animals and in some clinical characteristics.[7a,d]

In 38 cases of the Detroit series, it is obvious that the infection is that of Lept. icterohaemorrhagiae Agglutination reactions for Lept. canicola in these cases were either negative or the titers extremely low (less than 1:30) [28] In 2 additional cases (42 and 67, table 4) the diagnosis was clearly one of leptospirosis canicola. In the 5 cases in which the diagnosis was made at autopsy, identification of the specific organism was, of course, impossible.

However, the exact differential diagnosis in the remaining 33 cases is not so clear. As indicated in table 4, the agglutination titers of the serums of these patients are of apparently diagnostic significance against strains of both Lept. icterohaemorrhagiae and Lept. canicola. Which of these cases represent infection predominantly with Lept. icterohaemorrhagiae or Lept. canicola, and which cases represent mixed or dual infections is difficult to say.

According to the work of Walch-Sorgdrager,[7a] confirmed by Meyer and associates, there are cases in which one serum reacts with another strain in a manner which is termed *para-specific (associated reaction)*, since it rests on the similarity of the two strains in respect to their antigenic structure. It has been shown that both rat and human strains of Lept. icterohaemorrhagiae give paraspecific reactions with Lept. canicola serum. At times, this reaction has been very strong, yielding a value up to one-third the specific titer. The titer generally served to distinguish between these paraspecific reactions and the main (specific) reaction. Identification of the organism was possible from the fact that the reaction reached the level of the full specific titer with one or more anti-leptospira-icterohaemorrhagiae serums, but did not with the anti-leptospira-canicola serum, and also from the fact that the paraspecific reaction was apt to be weaker when the test was repeated or when a serum produced with heated antigen was used. Except for this difference in titer, the main and the paraspecific reactions cannot be distinguished with certainty.

---

[25] In the poultry houses studied there was found a heavy rat infestation, due to general lack of good housekeeping, blood, water and offal not being completely removed. The work tables were washed with Ringer's solution early in the morning, after having been exposed, as was the usual practice, during the night. Inoculations were made in guinea pigs, resulting in jaundice and death, with the pathologic lesions of Weil's disease. *At a later date, after the normal day's labor had been completed,* one table top was washed with a dilute solution of hydrochloric acid. The following morning no leptospiras were demonstrable in sample washings. This seems to verify other experimental and epidemiologic observations that leptospiras do not remain viable in an acid medium.

[26] In certain of the agglutination reactions indicated in table 4, the titers could perhaps *be explained on a cross agglutination basis. But there* are others that show a very high dilution for Lept. icterohaemorrhagiae and a negative reaction for Lept. canicola. This merely complicates the picture a little more.

[27] Morton, H.: J. Bact. **45**: 143, 1943.

[28] Blood serums from the 78 cases underwent agglutination tests for both Lept. icterohaemorrhagiae and Lept. canicola. These tests were conducted in the laboratory of the Detroit Health Department; at the National Institute of Health, in Washington, D. C., or at the George William Hooper Foundation, at the University of California; in many instances a single serum was examined at all three laboratories. Unfortunately, the agglutination reaction for Lept. icterohaemorrhagiae in most instances does not represent the "end point" of the reaction but merely an arbitrary "stopping point." Thus, it is impossible to derive a true representation of the relationship of the immunologic characteristics of these organisms from these data.

It would, therefore, seem probable that in many of these 33 cases the infection was with Lept. icterohaemorrhagiae and that the agglutination reaction noted represented merely a paraspecific reaction with Lept. canicola. There is always a possibility that the paraspecific reactions are anamnestic, since Lept. canicola infections may be latent. Man is probably frequently exposed to, and even infected with, these organisms Repeated serologic tests in combination with absorption undoubtedly would have confirmed the etiologic agent in these infections. Unfortunately, records for repeated agglutinations in the Detroit series are not available.

Unless one of these presumptive explanations is admitted for all these cases, the epidemiologic characteristics of Lept. canicola infections must be subjected to reconsideration. Although Lept. icterohaemorrhagiae is known to infect many animals (dogs, field mice, cats, pigs, foxes, mongooses, poultry, bandicoots, horses and rats), Lept. canicola has never been shown to infect naturally any animal but the dog. Lept. canicola has never been demonstrated in the rat population.[29] Even experimental inoculation of rats by Walch-Sorgdrager showed that whereas the rat was nearly always a carrier of Lept. icterohaemorrhagiae, it did not become a carrier of Lept. canicola. The latter organism appeared in the kidney of this animal only transiently and was not excreted in the urine.

It is interesting to note that even though 35 patients showed positive agglutination reactions with Lept. canicola in dilutions of 1:100 or more, only 4 of these patients indicated possible exposure to leptospiras from dogs, the remainder indicating known exposure to rats exclusively. Although contrary to all existent laboratory evidence, the possibility of the rat acting as an agent in the transmission of Lept. canicola infection must not be disregarded.

SUMMARY AND CONCLUSIONS

A series of 228 cases of leptospiral infections reported in the United States literature is reviewed. In comparison with the incidence in Europe and Great Britain, this total seems disproportionately low. The discrepancy appears to indicate diagnostic failure, probably due to a lack of awareness by American physicians of the clinical, epidemiologic and laboratory aspects of these infections. Even though the 78 cases of the Detroit area, reviewed in this paper, represent the largest single series ever reported in the United States, and despite greater availability of specific laboratory facilities in this area, the factor of diagnostic failure still obtained.

The Detroit survey revealed a number of additional factors. The role of rats and dogs in the transmission of these diseases, previously observed and recorded, was confirmed and emphasized. However, certain other aspects of leptospiral infections were revealed by this survey as important factors. It was indicated that in certain cases differential diagnosis of Lept. icterohaemorrhagiae and Lept. canicola was impossible unless repeated serologic tests are accomplished. In another group of cases involving only Lept. canicola the exclusive role of the dog as a transmission factor was questioned.

Detroit Department of Health.

---

[29] Walch-Sorgdrager.[7a] Meyer and others.[23]

A SYRINGE-TRANSMITTED EPIDEMIC OF INFECTIOUS HEPATITIS

With Observations Regarding the Incidence and Nature of Infectious Donors

RICHARD B. CAPPS, M.D.*
VICTOR SBOROV, M.D.
and
CHARLES S. SCHEIFFLEY, M.D
Chicago

The danger of accidentally transmitting disease from one person to another by means of a common hypodermic syringe has generally been looked on as remote. This is particularly true when dealing with apparently healthy persons. In fact, until recently, syphilis and malaria were the only common infections which were known to be readily transmitted in this manner. With the widespread and frequent use of syringes in the modern practice of medicine, the demonstration that another disease, virus hepatitis, may be so transmitted becomes a matter of considerable importance.

It has now been experimentally demonstrated that virus hepatitis, including both the infectious or epidemic and the homologous serum type, may be transmitted to human beings by the parenteral injection of infected serum.[1] As little as 0.01 cc. of serum has been sufficient to produce the disease.[2] The filterable agent is present in the blood during both the preicteric and the acute stage of the illness and, in the case of homologous serum hepatitis, during the incubation period.[3] Accidental transmission through transfusions of whole blood, plasma and convalescent serum and injections of biologicals to which serum has been added has been frequently reported.[4] Less widely appreciated in this country is the danger of transmission by means of unsterile syringes or needles. British workers have shown that this frequently occurs [5] and can be prevented by proper sterilization.[5b,f] Transmission may also occur during an ordinary venipuncture for the withdrawal of blood, as well as during parenteral injections, since Mendelssohn and Witts [6] have demonstrated that regurgitation of blood back into the vein usually occurs when the tourniquet is released. Finally, transmission by means of the "multiple dose per syringe" technic has been described.[7] In this method, which is commonly employed for the administration of such medicaments as vaccines, penicillin or antisyphilitic drugs to large groups, a small amount of serum is often unwittingly aspirated when the plunger is withdrawn to ascertain that the needle is not in a vein. In this manner the remaining material in the syringe may become infected.

---

* From the Department of Medicine, Northwestern University Medical School.

In this investigation Drs. J. J. Kane, Robert N. Armen, Morris Rackenmacher and Irving Madoff gave valuable assistance.

[1] (a) Oliphant, J. W.: Jaundice Following Administration of Human Serum, in Harvey Lectures, 1943-1944, Lancaster, Pa., Science Press, 1944, vol. 39, p. 254. (b) Paul, J. R.; Havens, W. P., Jr.; Sabin, A. B., and Philip, C. B.: Transmission Experiments in Serum Jaundice and Infectious Hepatitis, J. A. M. A. **128:** 911 (July 28) 1945. (c) Neefe, J. R.; Stokes, J., Jr.; Reinhold, J. G., and Lukens, F. D. W.: Hepatitis Due to the Injection of Homologous Blood Products in Human Volunteers, J. Clin. Investigation **23:** 836, 1944. (d) Findlay; G. M.; Martin, N. H., and Mitchell, J. B.: Hepatitis After Yellow Fever Inoculations: Relation to Infective Hepatitis, Lancet **2:** 301, 340 and 365, 1944.

[2] Havens, W. P., Jr.: Period of Infectivity of Patients with Experimentally Induced Infectious Hepatitis, J. Exper. Med. **83:** 251, 1946.

[3] Neefe, J. R.; Gellis, S. S., and Stokes, J., Jr.: Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis, Am. J. Med. **1:** 3, 1946.

[4] (a) Oliphant.[1a] (b) Findlay, Martin and Mitchell.[1d] (c) Murphy, H. M.: Transmission of Infectious Hepatitis by Blood Transfusion, Gastroenterology **5:** 449, 1945. (d) Rappaport, E. M.: Hepatitis Following Blood or Plasma Transfusions, J. A. M. A. **128:** 932 (July 28) 1945. (e) Grossman, S.; Homologous Serum Jaundice Following Administration of Commercial Pooled Plasma, New England J. Med. **234:** 181, 1946. (f) Beesan, P. B.; Chesney, G., and McFarlan, A. M.: Hepatitis Following Injection of Mumps Convalescent Plasma, Lancet **1:** 814, 1944. (g) Bradley, W. H.; Loutit, J. F., and Maunsell, K.: An Episode of Homologous Serum Jaundice, Brit. M. J. **2:** 263, 1944. (h) Sawyer, W. A.; Meyer, K. F.; Eaton, M. D.; Bauer, J. H.; Putnam, P., and Schwentker, F. F.: Jaundice in Army Personnel in the Western Region of the United States and Its Relation to Vaccination Against Yellow Fever, Am. J. Hyg. **39:** 337, 1944; **40:** 35, 1944.

[5] (a) Bigger, J. W.: Jaundice in Syphilitics Under Treatment, Lancet **1:** 457, 1943. (b) Salaman, M. H.; King, A. J.; Williams, D. I., and Nicol, C. S.: Prevention of Jaundice Resulting from Anti-Syphilitic Treatment, ibid. **2:** 7, 1944. (c) Sheehan, H. L.: Epidemiology of Infective Hepatitis, ibid. **2:** 8, 1944. (d) Hartfall, S. J.: Jaundice in Rheumatoid Arthritis, ibid. **2:** 358, 1944. (e) Beattie, J., and Marshall, J.: The Aetiology of Post-Arsphenamine Jaundice, Brit. M. J. **1:** 547, 1944. (f) Loutit, J. F., and Maunsell, K.: Prevention of Homologous Serum Jaundice, ibid. **2:** 759, 1945. (g) Droller, H.: Outbreak of Hepatitis in a Diabetic Clinic, ibid. **1:** 623, 1945. (h) Darmady, E. M., and Hardwick, C.: Syringe Transmitted Hepatitis, Lancet **2:** 106, 1945. (i) Syringes, Serum and Jaundice, editorial, Brit. M. J. **1:** 810, 1945. (j) Role of Syringes in the Transmission of Jaundice, Memorandum by Medical Officers of the Ministry of Health, Lancet **2:** 116, 1945. (k) Syringe Transmitted Hepatitis, editorial, J. A. M. A. **129:** 278 (Sept. 22) 1945.

[6] Mendelssohn, K., and Witts, L. J.: Transmission of Infection During Withdrawal of Blood, Brit. M. J. **1:** [illegible] 5.

Obviously the question of "carriers," or infectious donors of this disease, and the extent of their dissemination among the population is of fundamental importance in evaluating the danger of accidental parenteral transmission. During a special study of the problem of virus hepatitis conducted for the Surgeon General's Office by one of us (R. B. C.) at a United States Army General Hospital in this country, a syringe-transmitted epidemic of infectious hepatitis was encountered. A number of cases developed among men who had received tetanus toxoid on a certain day by the "multiple dose per syringe" technic. Since all the involved personnel who were available were studied, data regarding possible donors was obtained. We are making this report with this problem particularly in mind.

METHODS

Histories, physical examinations and the clinical portion of hepatic function tests were carried out in the clinic by a team of medical officers with special experience on the hepatitis wards. Patients with active hepatitis were admitted to the hospital and studied in detail.

The following laboratory procedures were employed. Retention of sulfobromophthalein sodium was determined at forty-five and sixty minutes after a dose of 5 mg. per kilogram. Previous control studies by ourselves and others [8] indicate that in this age group there should be no retention of dye even at forty-five minutes. For technical reasons we believe that 3 per cent and 2 per cent retention of dye at forty-five and sixty minutes respectively can be considered as doubtful and 4 per cent and 3 per cent as definitely abnormal. Serum bilirubin was determined spectrophotometrically, the modification of the Van den Bergh test described by Ducci and Watson being used.[9] Normal values according to Watson are 0.2 mg. per hundred cubic centimeters for the prompt direct (or one minute) reading of bilirubin and up to 0.8 mg. per hundred cubic centimeters for the total bilirubin. Ninety-seven per cent of our 35 normal controls gave values for both types of determination within this range. One case fell in the borderline range of 0.2 to 0.4 mg. per hundred cubic centimeters for the prompt direct reading. Urine urobilinogen was determined on a two hour specimen of urine by the quantitative method recently described by Watson, Schwartz, Sborov and Bertie.[10] Our control data indicate that the normal range originally proposed is probably too low. We feel that it is safer to take 1.0 to 1.5 total Ehrlich units as the borderline level and more than 1.5 total Ehrlich units as positive. Cholesterol esters were determined by Block's modification of Bloor's method.[11] All of our normal control determinations (15 cases) showed over 50 per cent esters, and 80 per cent of the controls showed over 55 per cent esters. Consequently, we have taken 50 to 55 per cent as borderline and less than 50 per cent as positive. Bilirubinuria was determined by the modified methylene blue test [12] and the "strip" test.[13] The cephalin cholesterol flocculation test was performed as described by Hanger.[14] It should be noted that our antigen was relatively insensitive, frequently giving negative results even during acute hepatitis with jaundice.

DESCRIPTION OF EPIDEMIC

One hundred and ten presumably healthy men, members of the detachment, received routine intramuscular injections in the arm of tetanus toxoid on Aug. 31, 1945. The material was administered from 10 cc. syringes containing ten doses each, and needles were changed between patients. A total of eleven syringes were required. Syringes were sterilized after being used for ten injections and before being refilled, while a freshly sterilized needle was employed for each patient. Sterilization was accomplished by means of a hot water sterilizer and was probably adequate, since enough equipment was available to allow for thirty minutes or more of immersion in boiling water.

Toward the end of September several cases of infectious hepatitis were recognized among the detachment, and inquiry revealed that in each case tetanus toxoid had been received on August 31. Consequently, all who had received toxoid on that date were called in for a history and a physical examination. Fifty-six men of the original 110 remained on the post, the others having been discharged or transferred elsewhere. Those with a history of acute symptoms or with abnormal physical findings compatible with infectious hepatitis were given a series of hepatic function tests. The examinations were done the second week of October, but unfortunately it was impossible to complete the laboratory part of the program until the first week of November. In consequence, abnormal findings in the cases of milder disease may have disappeared.

As indicated in table 1, history revealed that in 23 men symptoms developed characteristic of acute infectious hepatitis between September 15 and October 8. Specifically, the incubation period varied from twenty-one to thirty-eight days in 21 cases and was fifteen and sixteen days, respectively, in the other 2. Although the latter two intervals are unusually short, Havens has observed such incubation periods in artificially induced cases.[15] Two men gave a history of symptoms compatible with chronic hepatitis of six and nine months' duration, respectively, but neither had been sufficiently ill to report to sick call. The remaining 31 men denied the presence of symptoms during the previous two months.

---

7. Howells, L., and Kerr, J. D. O.: Hepatitis After Penicillin Injections, Lancet **2:** 51, 1946.

8. (*a*) Mateer, J. G.; Baltz, J. I.; Marion, D. F., and MacMillan, J. M.: Liver Function Tests, J. A. M. A. **121:** 723 (March 6) 1943. (*b*) Barker, M. H.; Capps, R. B., and Allen, F. W.: Chronic Hepatitis in the Mediterranean Theater, ibid. **129:** 653 (Nov. 3) 1945.

9. Ducci, H., and Watson, C. J.: The Quantitative Determination of the Serum Bilirubin with Special Reference to the Prompt Reacting and the Chloroform Soluble Types, J. Lab. & Clin. Med. **30:** 293, 1945.

10. Watson, C. J.; Schwartz, S.; Sborov, V., and Bertie, E.: A Simple Method for the Quantitative Recording of the Ehrlich Reaction as Carried Out with Urine and Feces, Am. J. Clin. Path. **14:** 605, 1944.

11. Reiner, M.: Manual of Clinical Chemistry, New York, Interscience Publishers, Inc., 1941.

12. (*a*) Gellis, S. S., and Stokes, J., Jr.: The Methylene Blue Test in Infectious (Epidemic) Hepatitis, J. A. M. A. **128:** 782 (July 14) 1945. (*b*) Barker, M. H.; Capps, R. B., and Allen, F. W.: Acute Infectious Hepatitis in the Mediterranean Theater Including Acute Hepatitis Without Jaundice, ibid. **128:** 997 (Aug. 4) 1945.

13. Hawkinson, V.; Watson, C. J., and Turner, R. H.: A Modification of Harrison's Test for Bilirubin in the Urine Especially Suited for Mass and Serial Usage, J. A. M. A. **129:** 514 (Oct. 13) 1945.

14. Hanger, F. M.: Serological Differentiation of Obstructive from Hepatogenous Jaundice by Flocculation of Cephalin Cholesterol Emulsions, J. Clin. Investigation **18:** 261, 1939.

15. Havens, W. P., Jr.: Immunity in Experimentally Induced Infectious Hepatitis, J. Exper. Med. **84:** 403, 1946.

TABLE 1.—*Occurrence of Acute Symptoms Consistent with Infectious Hepatitis Fifteen to Thirty-Eight Days After Injections of Toxoid*

	No. of Men
No recent symptoms	31
Chronic symptoms	2
Recent acute symptoms	23
Total men examined	56
Men that had left post	54
Total men receiving injections on August 31	110

RESULTS OF EXAMINATION OF INVOLVED PERSONNEL

The men in the group with acute symptoms gave a history of fatigue, indigestion especially to fatty foods, anorexia, flatulence and loose stools without real diarrhea. A few had nausea and vomiting, ache in the right upper quadrant, somnolence and urticaria. Fever was noted infrequently. In all cases symptoms persisted for at least ten days and usually longer. In a few instances aggravation from exercise was noted.[12b] One man (case 6) had dark urine and light stools.

The physical and laboratory observations in the group with acute symptoms are recorded in detail in table 2 Our evaluation of the significance of these observations is indicated by a division of cases into positive, questionable and negative or incomplete. In the "positive" group are placed all cases with either definite enlargement and tenderness of the liver, elevation of the retention of sulfobromophthalein sodium, increased serum bilirubin or multiple other abnormal findings. Cases in the "questionable" group all have evidence of hepatic dysfunction but less pronounced in degree. Findings in the last group are for the most part incomplete or negative. No laboratory tests at all were made in 3 of these cases.

All sulfobromophthalein sodium tests were done between October 24 and October 30 except for case 2, in which it was done on November 2, and case 6 on October 20. The Van den Bergh and other tests were performed between October 26 and November 9 except for case 10, in which they were done during the first two weeks of October. Clinical jaundice was observed only once (case 10). Likewise, bilirubinuria was found only in this 1 case, although a history of dark urine was not infrequently obtained. In the remaining patients, the disease must be classified as nonicteric or subclinical and therefore mild. Laboratory findings have frequently returned to normal in this type of case after three to six weeks.[16] This is particularly true of bilirubinuria and bilirubinemia, as well as the results of the cephalin cholesterol flocculation test. The significance of the negative results of the last test was further diminished by a relatively insensitive antigen. Finally, it should be noted that the subsequent disappearance of abnormal findings in many of our cases enhances their significance.

Unfortunately, it was impossible to make a similar set of observations on a control group due to lack of facilities. However, only 1 sporadic case of acute infectious hepatitis was recognized in the remainder of the detachment of approximately 700 men during the months of September and October, although the medical officers were alert for the disease. In view of the fact that 5 of our group of 23 men with acute symptoms reported to sick call voluntarily and were hospitalized, it appears extremely unlikely that the acute disease was epidemic in the rest of the detachment. It should further be noted that our laboratory procedures were individually con-

---

16. Barker, Capps and Allen.[12b] Neefe, J. R., and Reinhold, J. G.: Laboratory Aids in the Diagnosis and Management of Infectious (Epidemic) Hepatitis, Gastroenterology 7: 393, 1946.

TABLE 2.—*Findings in All Men Having Symptoms Following Injection of Tetanus Toxoid on August 31* *

			Liver						
	Case No.	Onset of Symptoms	Fingers Below Costal Margin	Tenderness	Percentage Sulfobromophthalein in Retention, 45 Min./60 Min.	Bilirubin, Mg./100 Cc. Direct/Total	Urobilinogen, 2 Hr. T.E.U.†	Cholesterol Esters, Percentage	Cephalin Cholesterol Flocculation, 24/48 Hr.
Positive									
	1	10/ 5	2	0	4/0	0.23/1.18	1.32	31	...
	2	9/21	3	2+	0/0	0.31/?	....	60	0/1
	3	10/ 1	7	2+	8/5	0.1/0.3	1.51	45	0/0
	4‡	10/ 1	0	2+	7/5	0.1/0.3	1.09	33	...
	5§	10/ 1	0	0	22/13	0/0.41	1.58	46	0/0
	6‖	9/27	5	3+	2/0	0/0.3	1.16	..	0/1
	7	10/ 8	2	1+	5/4	....	....	..	0/0
	8#	10/ 3	5	2+	0/0	0/0.17	....	39	0/1
	9	10/ 4	3	1+	3/2.5	0.03/1.18	1.18	57	...
	10	9/16	3	2+	...	5.7/8.0	8.20	36	1/3
	11	10/ 4	0	0	8/4	0.03/0.3	0.46	57	0/0
Questionable									
	12	10/ 6	0	0	4/2.5	....	....	..	...
	13	10/ 3	2	0	0/0	0.1/1.0	1.40	61	0/0
	14	10/ 5	1	1+	0/0	0/0.1	0.90	41	0/0
	15	10/ 4	?	2+	0/0	0/0.17	1.40	42	0/0
	16	10/ 7	0	0	3/2	0.1/0.44	....	..	0/0
	17	9/25	0	0	3/3	0/0.23	0.38	49	0/0
Negative or incomplete									
	18	10/ 4	1	1+	3/0	0/0.38	1.27	..	0/0
	19	9/28	0	0	0/0	0.03/0.44	....	53	0/1
	20	9/15	0	0	...	....	....	..	...
	21	9/25	0	0	...	....	....	..	...
	22	10/ 8	0	2+	...	....	....	..	...
	23	10/ 6	0	0	0/0	....	1.80	..	0/1
Chronic									
	1 c	March	4	3+	3/0	0.23/0.52	4.50	40	1/2
	2 c	January	2	0	5/3	0.16/0.55	3.2	59	0/0
Asymptomatic									
	1 a	None	3	1+	4/3	....	....	..	...
	2 a	None	2	0	2/1	....	....	..	...
	3 a	None	2	0	0/0	0.06/0.23	2.55	59	...

* The table also includes observations on 2 patients with chronic hepatitis and 3 asymptomatic patients with large livers.
† Total Ehrlich units.
‡ Four weeks later retention of sulfobromophthalein was 1/0 and the percentage of cholesterol esters was 61.
§ Five weeks later the liver extended 6 cm. below the costal margin.
‖ At the onset there were urticaria, light stools and aggravation from exertion.
# There was aggravation of symptoms from exertion.

trolled, detachment personnel and patients being used as indicated in the section on methods. The figures so obtained were used to establish our normal values and so constitute a partial control.

There was no segregation of the group studied as compared with the rest of the detachment in regard to living quarters, duty assignments or mess. Since the toxoid injection was the only apparent common factor, it is evident that it must have had etiologic significance. In view of these facts it is not unlikely that all 23 men who experienced similar acute symptoms at an appropriate interval following presumed exposure actually had acute infectious hepatitis. However, even in an epidemic in which clearcut cases with jaundice are present it is best to require objective evidence of hepatic abnormality before making the diagnosis of hepatitis. On this basis there were 11 definite cases ("positive" group, table 3) with perhaps 6 more doubtful ones ("questionable" group, table 3).

TABLE 3.—*Summary of Physical and Laboratory Findings in Men in Whom Acute Symptoms Developed in Fifteen to Thirty-Eight Days After Injections* *

Physical and Laboratory Findings	Number of Cases	Percentage of Total Examined
Definitely diagnostic of hepatitis............	11	19.6
Questionably diagnostic of hepatitis........	6	10.7
Negative or incomplete........................	6	10.7
Total men with acute symptoms.........	23	41.0

* Complete findings are recorded in table 2.

Examination of the 2 patients with chronic symptoms revealed that both had physical and laboratory evidence of hepatic disease without jaundice (table 2). One gave a history of having accidently swallowed serum from a patient suspected of infectious hepatitis while working as a laboratory technician late in July. An exacerbation of his symptoms occurred on September 10. The nature of the hepatic disease in this case is not clear. It may have been a chronic infectious hepatitis with a superimposed acute infection possibly from another strain, or it may have been either one alone. In any case he did not contract his disease on August 31 but on the contrary was possibly infectious at that time and may have served as one of the donors.

Physical examination of the 31 men without symptoms revealed 3 with enlarged livers, one being slightly tender. Unfortunately it was not feasible to do further tests on any but these 3. As shown in table 2 (cases 1a, 2a, and 3a under "asymptomatic") 1 had a definitely elevated retention of sulfobromophthalein sodium and 1 an increased excretion of urobilinogen. Whether these cases represent asymptomatic acute infectious hepatitis, chronic asymptomatic (inactive) infectious hepatitis or some other type of hepatic disease cannot be stated. Possibly some were infectious. If all 31 asymptomatic men had been given hepatic function tests, probably more cases of this sort would have been discovered.

THE INCIDENCE OF DONORS OR "CARRIERS"

Eleven of the 56 men who were examined had contracted acute infectious hepatitis, an incidence of 20 per cent. This makes it probable that of the original 110 men given injections, approximately 22 contracted the disease. Since a maximum of 9 men could have been infected from a single syringe, assuming in each instance that the first person given an injection was a donor, it follows that there must have been at least three contaminated syringes and 3 infectious donors. However, it is more likely that on the average a syringe would become contaminated when half empty, so that only 4 or 5 men would be exposed per contaminated syringe. If the more conservative figure is employed, there would have been five such syringes or 5 infectious donors, making an incidence of 5 per cent in the original group (table 4).

TABLE 4.—*Showing Derivation of the Probable Incidence of Infected Donors in Original Group*

Total number of men receiving injections August 31..................	110
Percentage contracting acute infectious hepatitis........................	20
Total number of original group contracting hepatitis.................	22
Number of infected syringes (average of 5 men infected per syringe)	5
Percentage of "donors" in original group..............................	5

Although these figures are too small to justify accurate statistical analysis, most of the potential errors would lead to a higher incidence of donors. Thus, as previously pointed out, the number of men contracting acute hepatitis was probably greater than 20 per cent. Secondly, it is unlikely that serum would be aspirated from every infectious person. And finally, 25 to 50 per cent of persons given injections of infectious material do not contract the disease, presumably because of immunity.[17] Consequently, it can be concluded that the incidence of infectious donors or carriers in the original group was probably at least 5 per cent and possibly much higher.

There is, of course, no way of ascertaining which men acted as infectious donors. Information is not available regarding the 54 men who had left the post except that there was no record of any of these having reported to sick call. One who left about the middle of September may have been jaundiced. He was observed by a medical officer during a casual meeting at the time of his departure. The only conclusion to be drawn is that the infectious donors were either asymptomatic or not sufficiently ill voluntarily to report to sick call. It seems probable that some of them fell into the first group and were apparently healthy. Whether such donors are true carriers or represent asymptomatic cases of acute or chronic infectious hepatitis recognizable only by laboratory procedures cannot be determined from this data.

COMMENT

This study demonstrates in a striking manner the danger of extensive dissemination of the virus of infectious hepatitis through the use of the "multiple dose per syringe" technic. That this was the actual mode of transmission cannot, of course, be absolutely proved, but it appears to be the only reasonable explanation. Sterilization of needles and syringes before and after use was apparently adequate. Furthermore, in the absence of gross carelessness, improper sterilization could hardly account for the large number of cases observed. In evaluating the high incidence of induced infection, 20 per cent, it is well to remember that the cases of mild nonicteric infectious hepatitis are difficult to diagnose and are usually not recognized except during an epidemic when the date of exposure is known. These persons often fail to consult a physician because symptoms are not sufficiently severe. Thus in our group only 1 man had clinical jaundice and probably not over one third would have voluntarily reported to sick call. It is recognized that some may differ with our criteria for making the diagnosis of acute hepatitis without jaundice. Although we agree that it is a particularly difficult diagnosis in sporadic cases, in an epidemic of this sort when the date of exposure is known we believe that it can be made with reasonable assurance.

---

[17] (a) Havens.[15] (b) Neefe, J. R.: Recent Advances in the Knowledge of "Virus Hepatitis," M. Clin. North America 30: 1407, 1946.

Of unusual interest is the rather surprising inference that approximately 5 per cent and possibly more of an unselected group of 110 men carried the virus of infectious hepatitis in their blood. Only 20 per cent of those questioned had been overseas and none had been in the Mediterranean theater, where the incidence of hepatitis was greatest. No explanation for this high figure is available.

Judging from the short incubation period, this epidemic was one of so-called epidemic hepatitis. It is of interest that Sawyer and co-workers [4h] in a careful study of the homologous serum epidemic of 1942 in the army arrived at a similar figure for the incidence of carriers. They suggested that 6 per cent and probably considerably more of the population carry this virus in their blood. This figure was based on the assumption that forty-seven lots of yellow fever vaccine out of a total of one hundred and seventeen studied were infected or icterogenic. To each lot was added pooled plasma from known donors. Nine hundred and seventy different donors were used, affording a fair sample of the local population. However, there is reason to suspect that more than forty-seven lots of vaccine were icterogenic and that a 6 per cent incidence of carriers is consequently too low. Thus the incidence of hepatitis from each lot of vaccine was determined by questionnaire and undoubtedly included only hospitalized patients. A careful study of unselected samples of both hospitalized and ambulatory recipients of two lots of vaccine at Fort Custer by one of us (R. B. C.) in association with others [18] gave startlingly different results, as shown in table 5. Lot 368 was generally admitted to be icterogenic but lot 382 was classified as nonicterogenic by Sawyer. Similar studies involving four other lots of vaccine classified as nonicterogenic were made at Fort Custer. The groups were too small for statistical analysis, but the trend was the same as for lot 382. Most of the cases occurring after use of these lots were mild, either nonicteric or with only a slight, transitory jaundice and would never have been recognized unless unselected samples of ambulatory recipients had been studied. From this data we can conclude that probably considerably more than forty-seven lots contained the virus and that the incidence of carriers was correspondingly higher than 6 per cent.

TABLE 5.—*Incidence of Hepatitis Per Thousand Men Given Injections from Two Different Lots of Yellow Fever Vaccine*

Vaccine Lot No.	Sawyer et Al.[4h]	Custer [18]	Size of Custer Sample
368	67.59	371.0	1,857
382	0.33	220.0	146

Finally, the wide dissemination of this virus among the population is evidenced by the frequency of catarrhal jaundice, which is probably identical with what is now called infectious or epidemic hepatitis. It is generally stated that approximately 5 per cent of adults give a history of this disease. If we also include the cases of unrecognized nonicteric disease, the total incidence would probably be at least 10 to 15 per cent and possibly considerably higher.

The few experimental observations available on human volunteers have failed to demonstrate persistence of the virus in the blood stream after the first month of illness,[19] although Neefe and co-workers have recently shown that the virus may persist in the feces and liver.[19c] However, it is difficult to explain the evidence presented in this paper except by the assumption that some persons become "carriers" of the virus, which is present in their blood. Since there is no way of determining which of our patients actually served as infectious donors, definite conclusions regarding the nature of such carriers cannot be reached. It can, however, be stated that only 2 of the potential carriers had symptoms and that in neither case were the symptoms sufficiently severe to require professional advice. Furthermore, none had a history of jaundice. Thus, for practical purposes, carriers may be apparently healthy persons without a recognizable past history of hepatic disease. Presumably their original infection was of the mild nonicteric type which is probably the most common. Whether persons with chronic symptomatic (or active) hepatitis or with asymptomatic evidence of hepatic disease (inactive hepatitis) are more likely to be carriers than those without any residuals is not known.

Sawyer and his colleagues [4h] arrived at essentially the same conclusions in their study of the plasma donors responsible for the homologous serum epidemic of 1942. In the case of many of the lots of icterogenic vaccine there were no donors with a history of jaundice, while in others there were donors with a history of jaundice from one to twenty years previously. In most cases donors were apparently well at the time of the blood letting.

The foregoing considerations have an important bearing on the potential danger of accidently transmitting this disease by parenteral inoculation. Not only does the available evidence indicate a relatively high incidence of carriers in the population but the nature of the latter is such that detection is for practical purposes impossible. Thus in the use of blood and blood products a calculated risk must be assumed. Syringe and needle technics should be carefully checked and revised, so that proper sterilization is accomplished. Consideration should also be given to the technic of finger puncture for blood counts. Although cases produced in this way have not yet been observed, there can be no doubt that the usual methods do not provide satisfactory sterilization of needles or lancets.

These observations reemphasize the frequency of acute hepatitis without jaundice. In this group 91 per cent of the cases fell into this category. In a previous study of the homologous serum epidemic of 1942 we reported that 70 per cent of 1,958 cases were without jaundice.[12b] Among the 32 cases studied from vaccine lot 382 (table 5), 90 per cent were nonicteric. On the other hand, in an epidemic studied by Neefe [17b] in only 26 per cent of 342 cases did overt jaundice fail to develop. Such variations are to be expected. Nevertheless, it is obvious that the nonicteric form of the disease is common.

---

[18] Report to the Surgeon General's Office of a Special Board for the Investigation of Jaundice at Fort Custer, Mich., 1942. Other members were Lieut. Col. M. H. Barker, Medical Corps, Major K. F. Bennet, Medical Corps, Major A. E. De Groat, Medical Corps, Major H. A. Davenport, Medical Corps, and Major F. W. Fitz, Medical Corps.

[19] (*a*) Havens.[2] (*b*) Neefe.[17b] (*c*) Neefe, J. R.; Stokes, J. Jr.; Garber, R. S., and Gellis, S. S.: Studies on the Relationship of Hepatitis Virus to Persistent Symptoms, Disability and Hepatic Disturbance Following Acute Infectious Hepatitis, J. Clin. Investigation **26:** 329, 1947.

It is noteworthy that 4 of the 10 persons with nonicteric disease were still sick three months after onset and could be classified as entering the chronic stage.[8b] This lends support to the concept proposed by Bloomfield in 1938 [20] and previously supported by ourselves [8b] that acute nonicteric hepatitis may lead to chronic hepatitis and perhaps in some cases to cirrhosis. This possibility is undoubtedly enhanced by lack of treatment resulting from failure to make the diagnosis. The importance of proper recognition is obvious.

CONCLUSIONS

An outbreak of infectious hepatitis apparently resulting from the use of the "multiple dose per syringe" technic for the administration of tetanus toxoid is reported. At least 20 per cent of the recipients of the toxoid contracted acute infectious hepatitis. It is estimated that probably 5 per cent of the original group must have carried the virus in their blood. Most of these were apparently asymptomatic and none were sufficiently ill to consult a physician voluntarily. The epidemiologic import of these figures is discussed, particularly as involves transmission by way of plasma, blood and syringe.

EPITHELIAL METAPLASIA OF THE URINARY TRACT

FRANK S. PATCH, M.D.
Montreal, Canada

The finding of tissue cells of another type than those normally found in an organ of the body is always intriguing, and the explanation of such an occurrence presents many difficulties. It is not strange that differences of opinion have arisen as to the exact mechanism by which such a metamorphosis of tissue cells has been produced.

Such changes are found not infrequently in the epithelium of the urinary tract, where they present an interesting urologic study. In this discussion I am confining my attention to the changes occurring in the renal pelvis, the ureters and the bladder. Although the epithelium of these organs possesses a different derivation embryologically, that of the ureter and pelvis being mesodermal and that of the bladder partly entodermal and partly mesodermal, they are all lined with transitional cell epithelium, and, except perhaps in the immediate neighborhood of the bladder outlet, true glands are not normally present.

Metamorphosis of the epithelium in these organs is of two distinct types: 1. The substitution for the normal transitional cell epithelium of a stratified keratinizing epithelium and the development of leukoplakia and, by what may be regarded as a further extension of the process, squamous cell carcinoma. In this group, the epithelial change is toward an epidermal type of cell. 2. The appearance in the mucosa of glandular formations, with secretory properties, the so-called cystitis glandularis. In a striking parallelism to the preceding group, there develops a mucin-secreting adenocarcinoma. In this group, the change is toward an entodermal type in which an epithelium is found, resembling that of the large bowel.

Though various explanations have been advanced to explain these processes, two theories are most widely held at the present time: (1) that the changes are due to embryonic cell inclusions from contiguous structures; particularly is this a point of conflict of opinion in the matter of the glandular formations; (2) that the changes are due to metaplasia.

It is desirable that the two groups be considered separately, even if there are many instances of significant parallelism in their respective courses. In some conditions in which they are commonly encountered, notably in exstrophy of the bladder and in the bladders of sufferers from schistosomiasis, they are found in intimate association.

The literature is rather voluminous, and I shall not attempt to cover it. At times it is even repetitious, a fault of which I myself may on this occasion be found guilty.

It is necessary to consider, on the one hand, leukoplakia and squamous cell carcinoma and, on the other hand, cystitis glandularis and the mucin-secreting adenocarcinoma.

LEUKOPLAKIA AND SQUAMOUS CELL CARCINOMA

Since 1900, up to which time few cases of leukoplakia and squamous cell carcinoma had been reported, there has been a steady increase in the number of case reports appearing in the literature, so much so that neither may be regarded as an unduly rare occurrence. It is perhaps reasonable that leukoplakia is noted less frequently than the more serious squamous cell carcinoma. Both conditions are met with most often in the bladder, less so in the renal pelvis and least of all in the ureters. They may even be observed in multiple foci.

There is not the same tendency to ascribe the presence of leukoplakia to embryonic cell inclusions as in the case of the glandular formations. Though some authors, in particular Hinman and Gibson,[1] have explained its occurrence as the result of an effort on the part of the epithelium to exercise its inherent power of adaptation to environment in the form of protective cornification, most authors, including the pathologists, have agreed that leukoplakia is metaplasic in origin.

Leukoplakia is usually associated with long-standing irritation and inflammation. It also follows, as has been shown by Wolbach and Rowe [2] experimentally the deprivation of fat-soluble vitamin A in laboratory animals. They showed that many different types of epithelium were replaced by stratified keratinizing epithelium, not only in the genitourinary tract, but also in the gallbladder, the trachea and the eyes. In their article, the autopsy of a case occurring in a human being was reported, in which the same epithelial changes were observed. In a later article, the same authors showed that no matter what type of epithelium was involved, in spite of origin from any of the three embryonic layers, in the repair following restoration of the diet, each epithelium was replaced by the kind

---

Address of the invited foreign guest read before the Section on Urology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1947.

[20] Bloomfield, A. L.: The Natural History of Chronic Hepatitis, Am. J. M. Sc. 195: 429, 1938.

[1] Hinman, F., and Gibson, T. E.: J. Urol. 6: 1, 1921.

[2] Wolbach, S. B., and Rowe, P. R.: J. Exper. Med. 42: 753, 1925; Vitamin A Deficiency in Guinea Pig, Arch. Path. 5: 239 (Feb.) 1928; J. Exper. Med. 57: 511, 1933.

normal to the location. They stated their conviction that the occurrence of leukoplakia is due to metaplasia. They made a most significant observation when they stated that "the behavior of the cells in a few of the animals . . . suggests the acquisition of neoplastic properties."

Most authors look on leukoplakia as a precursor of squamous cell carcinoma and believe that the cancer is an extension of the process. Against this, it has been urged that not all cancers are preceded by leukoplakia. Further than this is the fact that in only a relatively small number of cases have leukoplakia and squamous cell carcinoma been found in association.

In 1929 I collected 13 cases in which the two conditions were associated.[3] Since that time eight other case reports have been made, 4 by Goebel,[4] a second by Scholl,[5] and 1 each by Potts,[6] Kifman [7] and Aschner.[8] Rabson in 1936,[9] collected 18 instances of their occurrence in the bladder.

The report of Goebel deserved more than a passing reference. This was based on a study of tumors of the bladder in schistosomiasis. He found that in 4.3 per cent of sufferers from this disease cancers of the bladder developed. Schrumpf-Pierron [10] stated that, although the incidence of malignant tumors in Egypt is ten times less than in Europe and on this continent, the incidence of cancers of the bladder is much higher relatively. About 13 per cent of malignant disease in Egypt is due to schistosomiasis, mainly in the bladder.

The infestation of the bladder with Schistosoma haematobium is accompanied by intense irritation and produces a condition most favorable for metaplasic changes. Goebel reported 20 cancers of the bladder of which 11 were squamous cell carcinoma. All of these cases showed associated epidermoid metaplasia, and in 4 there were definite leukoplakias. Incidentally, there was 1 case of glandular cancer in his series.

The fact that relatively so few instances of the association of the two conditions have been found has been cited against the belief of a causal relationship. However, several authors have demonstrated intermediate stages between the two processes. Hinman, Kutzman and Gibson [11] observed, in sections of leukoplakia of the renal pelvis, evidences of what they thought must be regarded as definitely precancerous lesions. Hallé,[12] in a case in which the leukoplakia and squamous cell carcinoma were associated, found definite intermediate steps between the two conditions. We ourselves were able to give some confirmation to this finding. In our reported case of associated leukoplakia and squamous cell carcinoma of the renal pelvis and bladder, my colleague, the late Dr. Rhea, by taking serial sections, was able to demonstrate evidences of a transition between the two conditions.[13] These, in his opinion, if not definitely malignant, were certainly precancerous.

It may be that the question is not one of paramount importance. It is not necessary to assume that squamous cell carcinoma must be preceded by leukoplakia. Rabson [9] suggested that it is probable that squamous cell carcinoma in the bladder is caused by the same factors responsible for the leukoplakia, and that the carcinoma represents a "further distortion and exaggeration of the metaplasic process." In these cases, there is no intermediate benign stage, but rather an acceleration of the metaplasic process and an uninterrupted development of the malignancy. The condition, in other words, is malignant from the outset.

CYSTITIS GLANDULARIS AND MUCIN-SECRETING ADENOCARCINOMAS

The occurrence in the bladder of glandular formations possessing the faculty of secreting mucin has given rise to much discussion, and diametrically opposed views are held as to their origin. Is the process a metaplasic one, the result of chronic irritation or inflammation, or is it the result of embryonic inclusions of germinal cells of the lower intestinal tract? In view of the partial derivation of the bladder epithelium from entodermal tissues and as the bladder normally is devoid of glands, this latter assumption was not entirely unnatural. Probably the earliest reports of what is now known as cystitis glandularis were made on the exstrophied bladder, and such an assumption must have appeared logical to its first observers. However, in recent years, several facts have been revealed which makes the metaplasic theory a much more plausible one.

There are the observations of Enderlen [14] and Formiggini.[15] Both authors noted that the mucosa of the exstrophied bladder at birth was normal and that it was lined with normal transitional cell epithelium. There was a complete absence of glandular formations. The leukoplakia and cystitis glandularis which are such prominent features of the exstrophied bladder must therefore be regarded as postnatal acquisitions.

Furthermore, the occurrence of glandular formations in the renal pelvis and ureter (pyelitis and ureteritis glandularis) has been reported, notably by Brütt [16] and Paschkis.[17] The occurrence of mucin-secreting adenocarcinomas in the renal pelvis and in the ureter has also been reported. As the epithelium in these organs is derived from mesodermal tissues, the theory of entodermal inclusion loses much of its force.

Stoerk and Zuckerkandl [18] were the first to suggest that the glandular formations developed from the epithelial cell nests of von Limbeck and von Brünn, as the result of chronic inflammation. They were convinced that the process was definitely a secretory one and not a degenerative one. In the epithelial cell nest a cavity develops, gradually becoming lined with characteristic tall cells, with basally placed nuclei. The end result is a gland which secretes mucin, a condition to which they gave the name of cystitis glandularis. They stated their conviction that the theory of the developmental origin of cystitis glandularis had lost every basis of fact.

---

[3] Patch, F. S.: New England J. Med. **20**: 423, 1929.

[4] Goebel, G.: Ztschr. f. Krebsforsch. **3**: 369, 1905.

[5] Scholl, A. J.: Surg., Gynec. & Obst. **34**: 189, 1922; J. Urol. **44**: 759, 1940.

[6] Potts, W. J.: Squamous Cell Carcinoma of Renal Pelvis Associated with Stone and Leukoplakia, Arch. Surg. **25**: 458 (Sept.) 1932.

[7] Kilman, J. R., cited by Davidson.[1]

[8] Aschner, P. W.: Surg., Gynec. & Obst. **35**: 749, 1922.

[9] Rabson, S. M.: J. Urol. **35**: 321, 1936.

[10] Schrumpf-Pierron, P.: Ztschr. f. Krebsforsch. **36**: 145, 1932.

[11] Hinman, F.; Kutzman, A. A., and Gibson, T. E.: Surg., Gynec. & Obst. **34**: 473, 1924.

[12] Hallé, N.: Ann. d. mal. de org. genito-urin. **14**: 481 and 577 1896.

[13] Patch, F. S., and Rhea, L. J.: Canad. M. A. J. **33**: 597, 1935.

[14] Enderlen: Verhandl. d. deutsch. path. Gesellsch., 1904, p. 167.

[15] Formiggini, B.: Riforma med. **36**: 252, 1920; abstracted, J. de chir. **17**: 176, 1921.

[16] Brütt, H.: Ztschr. f. urol. Chir. **14**: 157, 1924.

[17] Paschkis, R.: Folia urol. **7**: 55, 1913.

[18] Stoerk, D., and Zuckerkandl, O.: Ztschr. f. Urol. **1**: 1 and 133, 1907.

In the same article, these authors pointed out that it might well be expected that epithelium which had undergone such a deviation from its normal character and had developed the habit of proliferation would go further and acquire malignant properties. In support of this, they reported a case of mucinous adenocarcinoma which had developed in an exstrophied bladder.

Furthermore, the changes which I am describing have been produced experimentally. Giani,[19] in an experiment for another purpose, introduced foreign bodies into the bladder of a rabbit and was surprised to observe the development of epithelial cell nests and cystitis cystica.

At this point, it seems desirable to make a brief reference to the not infrequent finding of cystitis cystica and the corresponding conditions in the renal pelvis and ureter. It is my opinion that these conditions represent one aspect of the process, which ordinarily leads to the development of active glandular formations. If the stimulus which initiated the process of adaptation should become inert, the process may be retarded and the gland epithelium may cease to function, or perhaps, overdistended by their own secretions, the epithelial cells become flattened and atrophied, and an impotent cyst remains. In other words, the cystic formations may be regarded as mere by-products of the process.

Most textbooks on pathology and urology speak of adenocarcinomas of the urinary tract as being exceedingly rare. Yet when one reviews the literature more closely one finds a surprising number of reports.

1. *Renal Pelvis.*—Four cases in the renal pelvis have been reported, those of Paschkis, Grohé,[20] Plaut [21] and Ackerman.[22]

2. *Ureter.*—Seven cases in the ureter have been reported, by Metcalf and Safford,[23] Kneise,[24] and 5 cases cited by Scott [25] (Cross, Einzig, Harrah, Mayock and Baurys, and Papin).

3. *Bladder.*—Here, it is not easy to compile statistics partly owing to the confusion which exists in describing these tumors and the great variation which is found in their nomenclature. Further, frequently no reference is made to the question of secretion of mucin.

In any event, the tumor is relatively a rare one. Scholl [5] found 5 in 333 tumors of the bladder observed at the Mayo Clinic in ten years. One of these occurred in an exstrophied bladder. Gayet [26] found 21 cases of cancer in exstrophied bladders, 16 being adenocarcinomas and 2 of the squamous cell variety. In the Montreal General Hospital only 3 cases of mucinous adenocarcinomas have been observed since 1910.

Some confusion has arisen in connection with tumors of the bladder vault, which some authors claim are in reality urachal tumors presenting in the bladder. Begg [27] (1936) reported 5 colloid adenocarcinomas and 2 adenocarcinomas (not colloid) which he placed in this category. In addition to these, he found 14 colloid adenocarcinomas in the urachus and 1 adenocarcinoma (not colloid). Hayes and Segal [28] (1945) in reporting a case stated that they had found an additional 25 cases in the literature. Higgins [29] has reported a further case.

Without making an exhaustive and critical study of these cases, it would appear that some cases at least have been included as urachal tumors which were regarded by the authors as being definitely of vesical origin.

Doubtless some tumors in the bladder vault originate in urachal epithelium. It is not proved, however, that all of them do. Two of the 3 cases reported by us [30] were situated in this area of the bladder. That they were of vesical origin was proved by intraperitoneal observation. In our third case it was in the neighborhood of a ureteral orifice.

Begg,[27] who has shown a special interest in urachal tumors, admitted that the urachus is a modified upper end of the fetal bladder and that its epithelium is essentially similar to that of the bladder. He stated:

> The urachal cells retain all the potentialities of primitive cloacal cells and are able to bring them at any period of life to fruition. Complete, but ill-regulated development toward glandular or transitional epithelium respectively may be observed. This development may overstep all bounds and give rise to colloid adeno-carcinoma on the one hand or squamous cell carcinoma on the other. As a rule, the full impulse given by the entodermal origin of the cells predominates, and the formations commonly seen pass through the stages of simple adenoma and adeno-carcinoma to reach finally the fully-formed colloid cancer of the rectal type.

It seems, however, that the question of urachal origin is not of paramount importance, when one considers that the urachal epithelium is similar to that of the bladder. The theory that an adenocarcinoma arising in the urachus is due to embryonic cell inclusions is just as open to argument as in the case of one arising in the bladder, and the metaplasic hypothesis is equally plausible.

It is interesting to compare the incidence of cancer in the exstrophied bladder, and in the bladder infested with the S. haematobium. In both cases an intense and long-contained irritation is present. In both there is an increased incidence of malignant growths of both types.

In the exstrophied bladder, as has been pointed out, mucinous adenocarcinomas predominate, possibly the result of an effort of the epithelium to adapt itself to its environment and to prevent, by a profuse secretion of mucus, an excessive desiccation of the exposed vesical epithelium. In the bladder affected by schistosomiasis, however, the squamous cell carcinomas predominate, in almost inverse ratio. This may be regarded as an attempt of the vesical epithelium to adapt itself to its irritating environment by the development of a protective cornification.

In both conditions the vesical epithelium strives to adapt itself to its environment by utilizing both methods. So in the exstrophied bladder, leukoplakia is often found in close association with cystitis glandularis, while in the bladder affected by schistomosiasis the reverse obtains.

Except in these two conditions, it is not easy to form any conclusions on the association of cystitis glandularis and adenocarcinoma. Often the diagnosis is based on the sole examination of a surgical specimen. Autopsies which would permit the fullest examination of the

---

19. Giani, R.: Centralbl. f. allg. Path. u. path. Anat. **17:** 180 and 900, 1906; Beitr. z. path. Anat. u. z. allg. Path. **42:** 1, 1907.
20. Grohe, B.: Deutsche Ztschr. f. Chir. **60:** 1, 1901.
21. Plaut, A.: Ztschr. f. urol. Chir. **26:** 562, 1929.
22. Ackerman, L. V.: J. Urol. **55:** 36, 1946.
23. Metcalf, W. F., and Safford, W. E.: Am. J. M. Sc. **129:** 50, 1905.
24. Kneise, O.: Ztschr. f. Urol. **24:** 10, 1930.
25. Scott, W. W.: J. Urol. **50:** 45, 1943.
26. Gayet, R.: J. d'urol. **39:** 295, 1935.
27. Begg, R. C.: Brit. J. Surg. **18:** 422, 1931.
28. Hayes, J. J., and Segal, A. D.: J. Urol. **53:** 659, 1945.
29. Higgins, C. C.: Urol. & Cutan. Rev. **50:** 4, 1946.
30. Patch, F. S., and Pritchard, J. E.: J. Urol. **57:** 126, 1947.

urinary tract are not always secured. None the less, many authors have noted the finding of cystitis glandularis in close association with the carcinoma.

In view of the frequent occurrence of cystitis glandularis and its comparable conditions in the renal pelvis and ureter, that so few cases of adenocarcinoma develop is a fact not easy to explain. It may be reasonable to infer that in many cases the original inciting factor ceases to be active and that recovery follows. In this respect the disappearance of the leukoplakia in the previously cited experiments of Wolbach and Rowe is most significant.

It may be, as was suggested in the discussion of the relationship between leukoplakia and squamous cell carcinoma, that an adenocarcinoma may result from an acceleration of the metaplasic process, stimulated by the same conditions which produced in more leisurely fashion the benign glandular formations.

In this connection, it may be noted that clinical observations have shown that the cystic and glandular formations in the bladder, at least, may disappear when the inciting irritation or infection has been eradicated by appropriate measures.

Though no clinical observations on the disappearance of leukoplakia in the human being are found, the experimental work of Wolbach and Rowe has shown that this does occur in laboratory animals. In animals in which leukoplakia had developed when they were given a diet deficient in vitamin A, the leukoplakia completely disappeared once the animals were restored to a normal diet.

Epithelial cells of the urinary tract possess latent potentialities of proliferation which, even on minimal irritation, may be followed by further, even unrestrained, growth. This change in the character of the cell may cease to be active or may even be reversed.

In view of the many doubts which still exist regarding the character of the changes which I have been discussing and which I regard as metaplasic, it is highly desirable that every opportunity be used to make complete and thorough examinations in every case in which they are observed.

CONCLUSIONS

Leukoplakia of the renal pelvis, ureters and bladder, and cystitis (pyelitis and ureteritis) glandularis are the result of epithelial metaplasia in response to a call for altered function, or at least as the result of altered environment. These metaplasias are commonly associated with chronic, long-standing irritation or infection.

Leukoplakia may follow vitamin A deficiency. In this condition it is not secondary to an infection.

The extent and intensity of the metaplasic process is in direct relation to the intensity and duration of the inciting factors.

Both conditions are potentially malignant. They may develop a malignant character by a further extension of the metaplasic process into squamous cell carcinoma and mucinous adenocarcinoma respectively.

Both types of cancer may develop, primarily, by an acceleration or intensification of the metaplasic process. It is possible that the epithelial changes may be reversible.

Clinical Notes, Suggestions and New Instruments

PULMONARY AND CEREBRAL FAT EMBOLISM FOLLOWING INTRAVENOUS ADMINISTRATION OF ETHER THERAPEUTICALLY

LOUIS LICHTENSTEIN, M.D.
and
SYDNEY SEWALL, M.D.
New York

The administration of ether intravenously for the nonsurgical treatment of impending ischemic gangrene has recently been advocated[1] as a safe procedure that promotes collateral circulation and affords relief from severe pain. Specifically, the advocates of this method of treatment for peripheral vascular disease recommend the daily infusion of 2½ per cent ether in a liter of isotonic solution of sodium chloride or (for hypertensive patients) dextrose for twelve consecutive days, followed after two days rest by a second course. Some of the complications encountered in carrying out this regimen have already been pointed out by Wirtschafter and Widmann.[2] The purpose of this report is to direct attention to another serious complication. In the first case in which the method indicated was employed at this hospital,[3] a fatality ensued during the course of treatment, which autopsy showed to have resulted from fat embolism. Inasmuch as the therapeutic regimen in question is likely to be given a rather wide clinical trial, it seems timely to emphasize, without prejudice to whatever therapeutic efficacy it may possess, that the intravenous administration of ether may be potentially dangerous.

REPORT OF CASE

History.—The patient was a moderately obese, hypertensive Negress, 75 years of age, who three months previously had had her left fifth toe amputated because of infection, Staphylococcus aureus having been obtained on culture. At the time, the dorsalis pedis artery could not be palpated, nor did oscillometric readings show any evidence of pulsation of the vessels of the calf on either side. The blood pressure was 240 systolic and 130 diastolic. The Kahn and Kline reactions were negative. Two weeks after the operation the wound broke down and examination showed an ulcerated, infected area on the dorsum of the amputation stump, as well as some swelling of the foot. Inasmuch as the conventional conservative methods had not proved efficacious and the patient declined further surgical intervention, it was decided to institute intravenous ether therapy, following precisely the method advocated by Katz.[1] During the course of treatment, the wound did become smaller and better demarcated and there was some subjective improvement, manifested chiefly in diminution of pain in the foot. During the course of the fifteenth infusion, however, after the latter had been going for one and three-fourths hours, the patient had a shaking chill and a temperature of 104 F., associated with substernal pain, nausea and vomiting. It was noted also that the blood pressure had dropped sharply to 110 systolic and that the pulse rate had risen to 120. The respiratory rate subsequently rose to 50 and the pulse to 150, the latter being shallow and thready. During the following day, the patient complained of respiratory difficulty even while in an oxygen tent, and in spite of supportive measures she died about thirty-five hours after the onset of untoward symptoms.

Postmortem Examination.—The significant observations only will be indicated. At the site of the amputation there was a small granulating wound, about 1 cm. in diameter, through which a spicule of bone from the head of the metatarsal bone protruded. The surrounding soft parts of the stump, however, showed no evidence of recent infection. As for the viscera, the heart was appreciably hypertrophied, reflecting the hyper-

---

From the Laboratory Division, Hospital for Joint Diseases.

[1] Katz, R. A.: Impending Ischemic Gangrene: New Non-Surgical Therapeutic Suggestions, New Orleans M. & S. J. **98:** 542-554 (June) 1946.

[2] Wirtschafter, Z. T., and Widmann, R.: The Elaboration of Histamine in Vivo in the Treatment of Peripheral Vascular Disorders: A Preliminary Report, J. A. M. A. **133:** 604-605 (March 1) 1947.

[3] On the Orthopedic Service of Dr. Harry D. Sonnenschein.

tension, and showed patches of old myocardial fibrosis in the apical region and posterior wall of the left ventricle. There was severe coronary sclerosis, with focal narrowing of all the major branches but no indication of recent thrombosis. The lungs were voluminous and somewhat emphysematous, and on section presented dark-red moist congested surfaces, without evidence of bronchopneumonia. The liver parenchyma was strikingly soft and friable. The spleen was small and firm, and not remarkable, showing neither infarction nor fibrosis. The kidneys showed arteriosclerotic scarring, with slight reduction in size and evidence of congestion and parenchymatous degeneration. The stomach was dilated and contained about a liter of fluid material. The surface of the brain was congested, and serial section showed it to be peculiarly soft and congested throughout, although no significant focal lesions were discernible. From the gross findings alone, the cause of death was not clear, and the fatality was ascribed tentatively to hepatic damage, or possibly to cerebral injury.

Microscopic examination revealed a number of additional abnormalities that shed light on what had apparently happened in this case. Sections of the kidneys showed tremendously dilated, empty glomerular capillaries—a finding that prompted Dr. A. R. Rich, whom we consulted, astutely to suggest the possibility of fat embolism. The presence of fat globules within the glomerular tufts could not be demonstrated (although they may have been dissolved in the course of storage of the tissue blocks in alcohol). However, frozen sections of the lungs stained with sudan IV showed embolic occlusion by neutral fat of many of the alveolar capillaries and smaller pulmonary artery branches. The brain had not been preserved so that we were unable to do frozen sections in a search for fat emboli in the cerebral vessels. However, sections of the paraffin blocks showed congestion, focal demyelinization of the white matter, especially around blood vessels, and beginning reactive gliosis—findings resembling those described by Wertham and co-workers,[4] Groskloss,[5] Warren[6] and others in cases of

COMMENT

That fat embolism may develop following fractures, especially after surgical manipulation, is a commonplace observation.[7] The experience of the late war has also brought the full realization that fat embolism is a rather common and important cause of death after traumatic injuries in general, even without fracture of one or more bones.[8] Occasionally it may even be a consequence of severe burns. The explanation usually advanced in such cases is that fat particles mobilized from traumatized fatty bone marrow or other fat depots gain entry into the venous circulation, only to be trapped in the capillary bed of the lungs, and frequently of the brain, kidney and other organs as well. However, fat embolism is known to develop also in the absence of injury to fatty tissue, having been observed, for example, as a spontaneous phenomenon in cases of sickle cell anemia[9] and (rarely) in a variety of conditions characterized by lipemia.[7] Clearly, the explanation commonly invoked to account for fat embolism does not apply to such cases, and one must consider certain other possibilities. Thus, the source of the embolized fat globules may conceivably be the lipid envelope of erythrocytes in the blood, as Angrist[4] has cogently suggested in relation to fat embolism complicating sickle cell anemia. According to Leathes and Raper[10] the lipid content cerebral fat embolism. It should be mentioned also that the red cells appeared sickled in many places, but there were no changes in the spleen and other organs to indicate that sickle cell anemia had been present.

of the red corpuscles is actually greater than that of the plasma, and is apparently labile, since its amount and composition change in the course of fat metabolism. Still another potential source of embolized fat is the emulsified fat in the blood plasma, and, indeed, the latter may well have played a role in the development of fat embolism in our case. In this connection, it is pertinent to cite the observations of Lehman and Moore[11] that fat emulsions can be broken up by ether and that dogs to whom ether is administered intravenously show significant fat embolism, the extent of fat embolism being enhanced by alimentary lipemia. Incidentally, in the case that we are reporting, the ether infusion that proved fatal was started about two hours after lunch, at which time alimentary lipemia might be expected to be at or near its peak.

The hazard of fat embolism is also of concern to anesthetists who occasionally employ ether intravenously, although the method does not appear to be in general favor. Fatalities have undoubtedly occurred after the intravenous use of ether as an anesthetic,[12] but we have been unable to find any reports in which the outcome was ascribed to fat embolism, although it is altogether possible that the latter was overlooked. Instances of fatal fat embolism, however, have been reported after anesthesia with chloroform[7] and cyclopropane,[13] which are, of course, also fat solvents.

In administering ether as a therapeutic agent, one must consider its effect on the liver also, in view of the accumulated evidence that ether may produce alterations in hepatic function, as well as anatomic evidences of injury to hepatic cells. Also, in view of the finding by Wirtschafter and Widmann[2] of gross hematuria and urinary casts in a number of patients so treated, one must take cognizance of possible alterations in renal function as well. Indeed, if the ether infusion method is to be employed for the treatment of peripheral vascular disease, it seems but a reasonable precaution to require that the status of hepatic and renal function be determined before and also at frequent intervals during the period of treatment and that further administration of ether be promptly discontinued if evidence of functional impairment be found.

SUMMARY

In a case in which the intravenous administration of ether was employed for the relief of peripheral vascular disease, a fatality ensued which autopsy showed to have resulted from pulmonary fat embolism. There were also microscopic changes in the brain indicative of cerebral fat embolism. Some of the implications of this experience are discussed. Attention is also directed to the necessity for safeguarding against irreparable hepatic and renal injury by ether administered intravenously.

---

4. Wertham, F.; Mitchell, N., and Angrist, A.: The Brain in Sickle Cell Anemia, Arch. Neurol. & Psychiat. **47**: 752-767 (May) 1942.
5. Groskloss, H. H.: Fat Embolism, Yale J. Biol. & Med. **8**: 59-91 and 175-197, 1935; **8**: 297-316, 1936.
6. Warren, S.: Fat Embolism, Am. J. Path. **22**: 69-83 (Jan.) 1946.
7. Warthin, A. S.: Traumatic Lipaemia and Fatty Embolism, Internat. Clin. **4**: 171-227, 1913.
8. Robb-Smith, A. H. T.: Pulmonary Fat-Embolism, Lancet **1**: 135-141 (Feb. 1) 1941. Warren.[6]
9. Wade, L. J., and Stevenson, L. D.: Necrosis of the Bone Marrow with Fat Embolism in Sickle Cell Anemia, Am. J. Path. **17**: 47-54 (Jan.) 1941. Wertham, Mitchell and Angrist.[4]
10. Leathes, J. B., and Raper, H. S.: The Fats, ed. 2, London, Longmans, Green & Co. 1925, p. 149.
11. Lehman, E. P., and Moore, R. M.: Fat Embolism Including Experimental Production Without Trauma, Arch. Surg. **14**: 621-662 (March) 1927.
12. Betcher, A. M.: Personal communication to the authors.
13. Doud, E. A., and Rovenstine, E. A.: Fatal Fat Embolism: A Case Report, Anesthesiology **7**: 291-295 (May) 1946.

Epidemics Traced to Cheese.—A summary of the data shows that during this time (since 1883) there has been a total of fifty-nine epidemics with 2,904 cases of disease and 117 deaths. There is every reason to believe that this represents only a fraction of the total. After the epidemics reported by Baker in Michigan during 1883-1884 no epidemics were recorded until 1893, after which there was a lapse of twenty-one years before another epidemic was reported. Thereafter, only an occasional epidemic due to cheese was reported until 1932, when the big epidemic occurred in Quebec, with 627 cases and 57 deaths. This epidemic seems to have made public health official conscious of the fact that cheese may be an important vehicle for the transmission of disease, and from that time on we find one or more epidemics reported each year except in 1933. From 1935 to 1945 forty epidemics were reported involving 1,741 cases and 47 deaths, which is over twice as many epidemics as the nineteen which were reported in the previous forty-two years. Such figures lead one to suspect strongly that during this time cheese had been overlooked as a source of disease. —Fabian, F. W.: Cheese and Its Relation to Disease, *Am. J. Pub. Health*, August 1947.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

OXIDIZED CELLULOSE.—Hemopak-Johnson & Johnson.—Absorbable cotton or gauze.—Cellulosic acid.—$(C_6H_8O_6)$.—M. W. n(176.12). Oxidized cellulose is prepared by the nitrogen dioxide oxidation of surgical gauze or cotton. Cellulosic acid is a polyanhydroglucuronic acid having a minimal carboxyl content of 16 per cent, a nitrogen content not in excess of 0.5 per cent derived from the nitrogen dioxide used in its preparation, and a formaldehyde content not in excess of 0.5 per cent derived from the formaldehyde used in its sterilization.

Actions and Uses.—Oxidized cellulose, a specially treated form of surgical gauze or cotton, exerts an unusual hemostatic effect and possesses the property of absorbability when buried in the tissues. Its hemostatic action is dependent on the formation of an artificial clot by cellulosic acid, which has a pronounced affinity for hemoglobin but does not enter per se into the physiologic mechanism of clotting. Absorbability depends on the size of the implant used, the adequacy of the blood supply to the area and the degree of chemical degradation of the material. Absorption of oxidized cellulose ordinarily occurs between the second and seventh day following implantation of the dry material, but complete absorption of large amounts of blood-soaked material may take six weeks or longer.

Oxidized cellulose is of value as an aid in surgery for the control of moderate bleeding under conditions where suturing or ligation is technically impractical or ineffective. Such situations include the control of capillary, venous or small arterial hemorrhage encountered in operations on the biliary tract, partial hepatectomy, resections or injuries of the pancreas, spleen or kidneys, bowel resections, amputations, resections of the breast, thyroid and prostate and in certain aspects of neurologic and otolaryngologic surgery. Oxidized gauze is employed as a sutured implant or temporary packing depending on the anatomic site or structures involved. Oxidized cotton is used primarily for neurologic surgery as unsutured packing, small portions of which may be left unremoved to control small areas of oozing from the dura or brain tissue. This material is likewise useful as temporary packing for control of secondary hemorrhage following adenoidectomy, tonsillectomy and other oral procedures and for control of alveolar bleeding following tooth extraction. Neither oxidized gauze nor cotton should be used for permanent packing or implantation in fractures; because it interferes with bony regeneration and may result in cyst formation.

The hemostatic action of oxidized cellulose is not enhanced by the addition of other hemostatic agents such as thrombin, which would be destroyed by the low *p*H of the material, and it has been shown that the hemostatic action of either alone is greater than the combination. The hemostatic effect is greater when the dry material is applied, so that moistening with water, or sodium chloride solution is not recommended. When properly used, oxidized cellulose may be closed in a clean wound without drainage, but this is hazardous whenever gross contamination is suspected or frank infection is present.

Neither oxidized gauze or cotton should be used as a surface dressing except for the immediate control of hemorrhage, as cellulosic acid inhibits epithelialization.

Dosage—The amount of oxidized gauze or cotton used varies with the circumstances of the particualr case. As a general rule, only the minimal amount required to control hemorrhage should be used. For the control of hemorrhage from the prostatic bed, this may vary from one to four 2 by 14 inch (5.18 by 35. 6cm.) gauze packing strips, depending on the extent and vascularity of the area to be packed and the technic employed. This size of oxidized gauze is particularly designed for implantation by means of mattress sutures. Gauze packing strips ½ inch by 2½ yards (1.27 by 228.6 cm are adapted for otolaryngologic or dental procedures; cotton pads 2 by 6 inches (5.08 by 15.24 cm.) are designed for neurologic, oral and/or dental surgical procedures.

In the event that it is desired to remove gauze or cotton from a hollow viscus or drainage site before dissolution is complete, removal can be facilitated by irrigation.

Tests and Standards.—

Oxidized cellulose in the form of gauze or cotton is slightly off-white in color, is acid to the taste and possesses a slight charred odor. It is soluble in dilute alkalie but insoluble in acids and water.

The solution obtained by vigorously shaking for one minute 200 mg. of oxidized cellulose in 10 cc. of 1 per cent aqueous sodium hydroxide solution, followed by the addition of 10 cc. of water, shows only a few fibers or foreign particles and only a slight haze. The presence of some swollen fibers may be tolerated if such fibers disappear when the solution has been standing for ten minutes. Addition of excess acid to the prepared solution causes a white, flocculent precipitate.

The moisture content of a 200 mg. sample of oxidized cellulose, when dried in vacuum over phosphorus pentoxide for twenty-four hours, does not exceed 15 per cent.

The residue on ignition of an accurately weighed specimen of oxidized cellulose does not exceed 0.15 per cent of the weight of the gauze or cotton.

Place 0.5 Gm. of oxidized cellulose, weighed to the nearest milligram, in a 125 cc. Erlenmeyer flask. Add 50 cc. of quarter-normal calcium acetate to the flask and swirl the contents until the sample is completely covered. Allow the mixture to stand for thirty minutes at room temperature, then titrate the solution with tenth-normal sodium hydroxide, using 5 drops of 5 per cent phenolphthalein T.S. as the indicator. Correct the titration by a blank run on 50 cc. of the calcium acetate solution. Each 1 cc. of tenth-normal sodium hydroxide is equivalent to 0.0045 Gm. of carboxyl group. The carboxyl content is not less than 16 per cent or more than 22 per cent, calculated on the dry basis.

Place a 1 Gm. sample of oxidized cellulose, weighed to the nearest milligram, in a 500 cc. Kjeldahl flask. Arrange a 125 cc. Erlenmeyer flask, containing 30 cc. of 4 per cent boric acid solution and 6 drops of mixed indicator (1 part of 0.1 per cent methyl red T.S. and 4 parts of 0.1 per cent bromcresol green T.S.); beneath the condenser of the distillation apparatus so that the tip of the condenser is well below the surface of the boric acid solution. Add to the Kjeldahl flask containing, the sample 1 Gm. or Devarda's alloy (50 per cent copper, 45 per cent aluminum and 5 per cent zinc), 100 cc. of ammonia-free distilled water, a small lump of paraffin wax and 100 cc. of 5 per cent sodium hydroxide solution. Connect the Kjeldahl flask to the condenser by a suitable trap bulb. Heat the mixture in the flask until 45 to 50 cc. of distillate has collected in the receiver. Rinse the condenser and titrate the boric acid solution with tenth-normal sulfuric acid to a pale pink endpoint. Correct the titration by a blank run on the reagents in identical fashion. The nitrogen content shall not be more than 0.5 per cent, calculated on the dry basis.

To 1 Gm. of Oxidized cellulose in a 300 cc. Florence flask add 120 cc. of one times normal sulfuric acid and a few glass beads. Connect the reaction flask to an apparatus arranged for distillation with a dropping funnel filled with distilled water entering the flask. Transfer 10 cc. of a sodium bisulfite solution (13.7 Gm. sodium bisulfite or 12.5 Gm. sodium metabisulfite per liter in water) into a receiver so that the condenser outlet is submerged in the bisulfite solution. The contents of the reaction flask are heated to boiling, and during distillation distilled water is added to the reaction flask from the dropping funnel at such a rate that the volume of the contents of the reaction flask is not appreciably altered. Carry on the distillation for one hour, collecting 250 to 300 cc. of distillate. Cool the distillate, if warm, and allow it to stand for fifteen minutes to insure complete reaction of the bisulfite and formaldehyde. Add 1 cc. of starch T.S. and destroy the excess bisulfite by addition of tenth-normal iodine solution until a blue color is obtained. Discharge with a drop or two of tenth-normal sodium thiosulfate. Add 5 cc. of saturated sodium bicarbonate solution and titrate the liberated bisulfite with tenth-normal iodine. As the endpoint is approached, signaled by the very slow consumption of iodine, 0.5 cc. portions of half normal sodium carbonate are added, which discharge the blue color. The endpoint is reached when 1 cc. of the sodium carbonate solution does not discharge the blue color over a period of half an hour. Too great an excess of sodium carbonate is to be avoided since at high *p*H the iodoform reaction may take place with an increased consumption of iodine. Each cc. of tenth-normal iodine solution is equivalent to 1.5 mg. of formaldehyde. The formaldehyde content should not exceed 4.5 per cent of the weight of oxidized cellulose calculated on the dry basis.

JOHNSON & JOHNSON, NEW BRUNSWICK, N. J.

Hemo-Pak Absorbable Gauze Packing Strip (4 ply): 2 by 14 inches (5.08 by 35.56 cc.) and ½ inch by 2½ yards (1.27 by 228.6 cc.) in sealed tubes.

Hemo-Pak Absorbable Cotton Pad: 2 by 6 inches (5.08 by 15.24 cc.) in sealed tubes.

U. S. trademark registration pending.

RIBOFLAVIN (See New and Nonofficial Remedies, 1947, p. 511).

The following additional dosage form has been accepted:

WALKER VITAMIN PRODUCTS, INC., MOUNT VERNON, N. Y.

Tablets Riboflavin: 10 mg.

SULFAMERAZINE (See New and Nonofficial Remedies, 1947, p. 125).

The following dosage form has been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Tablets Sulfamerazine: 0.5 Gm.

AMINOPHYLLINE (See New and Nonofficial Remedies, 1947, p. 305).

The following additional dosage form has been accepted:

CARROLL DUNHAM SMITH PHARMACAL COMPANY, NEW BRUNSWICK, N. J.

Tablets Aminophylline: 0.2 Gm. enteric coated with shellac.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Twelve dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, MARCH 20, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors employed by the American Medical Association from their work continues. This issue of THE JOURNAL has been prepared largely by the use of Vari-Typer machines. Because of the difficulties of reorganization of the headquarters office necessitated by this situation, the editorial material in this issue of THE JOURNAL has been greatly condensed.

LEPROSY

World War II caused disruption of research on leprosy, and took essential personnel but did not stop progress. The most outstanding advancement in leprosy was made in clinical treatment. In 3 cases reported in a review by Dr. James A. Doull[1] successful surgical removal was apparently made of the primary lesion. In 2 cases evidence of dissemination of the disease had not appeared eleven years postoperatively. In the third case, that of a patient operated on in 1916, evidence of leprosy had not appeared on reexamination in 1944, twenty-eight years after excision of the original lesion. Use of diphtheria toxoid was considered to have failed to show beneficial results in treatment. This was equally true of transfusions of pooled blood plasma. Calcium gluconate was reported to give beneficial results when administered intravenously in cases of painful neuritis.

Preliminary reports of treatment with streptomycin were inconclusive. Many toxic manifestations were encountered, the most serious being tinnitus, impaired hearing and exfoliative dermatitis, and other reactions found to be associated with streptomycin therapy in other diseases.

Two groups of workers reported unsuccessful use of penicillin treatment. Dosages reached 100,000 units daily for periods of more than two weeks. Technics used were intramuscular injection every three hours, intravenous drip eight to ten hours daily and daily intramuscular injections of the drug in peanut oil and beeswax. The authors of these papers concluded that penicillin seemed to be useful in patients with secondary infections caused by streptococci or staphylococci. The dosages of penicillin were relatively small compared with extremely high penicillin dosages which have been found necessary for successful treatment in many cases of subacute bacterial endocarditis failing to show improvement on lesser dosage.

One author reporting on chaulmoogra oil stated that disagreement regarding therapeutic value of chaulmoogra is due essentially to lack of uniformity in selection of cases. Only the lepromatous type should be considered. He believed that the use of derivatives of chaulmoogra oil had achieved persistent clinical and bacteriologic negativation of lepromatous cases.

Dr. Doull reemphasizes the necessity for controlled case studies with the newer drugs. There is apparently some danger that plans for such control tests may be sabotaged on the one hand by a demand for treatment by every patient and on the other by the insidious belief that the response of treated patients furnishes a sufficient guide. The deceptive course of leprosy and the present continued uncertain position of chaulmoogra oil in therapy after years of administration is certainly convincing evidence of the necessity for adequately controlling experiments with newer drugs.

Sulfone drugs which have been used in leprosy are "promin," "diasone," "promizole" and "sulphetrone." The active principle of each of these seems to be diaminodiphenyl sulfone, the basic chemical from which they are derived. These drugs vary greatly in solubility and toxicity. The first report made by Faget and associates[2] stated that "promin" seemed to possess some chemotherapeutic property in leprosy, as evidenced by the apparent inhibition of the progress of the disease. This observation was subsequently confirmed by the same and other observers, who found that the improvement in leprosy under "promin" therapy is not accompanied by characteristic cellular changes. Cellular changes which do occur are atrophic in character, with extremely slow and gradual lessening of numbers of organisms in the lesions to the point of final disappearance. These changes do not differ materially from changes occurring during spontaneous remission without treatment of any sort. The important observation is apparently that "promin" eliminates bacillary infection in the blood vessels and blood stream, thereby preventing spread to new areas. Atrophy of focal lesions was found in locations with generous blood supply. Final conclusions were that a more highly bactericidal agent than "promin" appears necessary for chemical destruction of bacilli within tissue cells.

---

[1] Doull, J. A; The Journal: A Review of the Scientific Papers, Internat. J. Leprosy 15: 444-465 (Oct.-Dec.) 1947.

[2] Faget, G. H., and others: The Promin Treatment of Leprosy: A Progress Report, Pub. Health Rep. 58: 1729-1741 (Nov. 26) 1943.

"Diasone" was reported on favorably in Trinidad, British West Indies, the National Leprosarium at Carville, La., and in Rosario, Argentina. Encouraging improvement occurred in patients treated, but bacilli did not completely disappear from lesions.

"Promizole" appeared to be well tolerated by patients with leprosy. Clinical improvement occasionally could be demonstrated more quickly with this drug than with "promin" or "diasone." There is disagreement with this on the basis that such a difference is not definitely established. This together with the distastefulness of the drug and its relative expense has led to its discontinuance in some clinics. "Sulphetrone" has been tried on only a few patients over a period of six months. Results are promising, and only mildly toxic symptoms have been observed.

Successful treatment of lepromatous ulcers was reported in 14 of 15 patients treated over periods varying from nineteen to seventy-five days with a 2 per cent alcoholic solution of tyrothricin. This solution is applied to ulcers in spray form. Crude streptomycin broth used locally has also been favorably reported.

Faget and Erickson[3] have stated that the sulfone drugs "promin," "diasone" and "promizole" produce objective clinical improvements in leprosy which are sustained and cannot be attributed to spontaneous remissions in the disease. These objective improvements, although slow in development, are progressive during the course of treatment. These authors[3] concluded that the sulfone drugs must be considered the optimal remedy for leprosy until faster acting remedies are discovered.

The long, unsettled and unsatisfying experience with chaulmoogra oil dictates that considerable caution be exercised in ascribing antileprotic qualities to any drug. However, recent developments with the sulfone derivatives indicates the probablity that a true chemotherapeutic agent may soon be discovered.

FAINTING AND FLYING

Romano and Engel[1] stated that encephalograms taken during actual loss of consciousness may be classified in three groups: the emotional type of fainting, the epileptic type and the syncopal or vasodepressor type. Rook similarly classified 500 cases of impairment of consciousness in pilots and air crew studied at the Central Medical Establishment, Royal Air Force. He considered the pathologic processes that led to the attack to result from three separate mechanisms: disturbances of the highest cortical levels; hypersensitivity of the nerve cells at the lower level leading either to explosive discharge or to pathologic inhibition, and alterations in the quantity or quality of the blood supply to the brain. The essence of loss of consciousness affirmed Rook, must be some change in the nerve cells themselves, whether brought about by mechanical, chemical or electrical agencies. Rarely in any case is only one of these pathologic processes at work. For example, emotion may be the trigger that unlooses an epileptic fit or causes an attack of syncope, as pointed out by Penfield and Erickson. The differentiation between an epileptic attack and cardiovascular syncope is not always easy. Epilepsy may be characterized by flaccidity rather than by convulsions, and convulsive movements are often seen in syncope. A reliable record of the patient is important. Psychiatric examination is helpful. Much controversial discussion ranges about the value of electroencephalograms. The exact value of encephalographic study has not been completely determined. A positive or negative electroencephalogram may be suggestive but no more. An electroencephalogram was done on 299 of the patients in Rook's series. In the neurogenic group nearly 50 per cent of the electroencephalograms pointed to an epileptic basis for the attack; in the other groups 15 per cent were positive. A change in the electroencephalogram when repeated occurred in 11 instances.

Of the 500 cases studied by Rook, 120 (24 per cent) were regarded as primarily neurogenic, 154 (31 per cent) as primarily due to some cardiovascular cause and 208 (42 per cent) as primarily emotional in origin. Seventeen cases could not be accurately classified. Pilots appear more likely to be affected than air crews. Fifty-three cases were definitely epileptic in origin, and 6 others were almost certainly epileptic. Hyperventilation of emotional origin in pilots and air crew was a frequent and a definite factor in the production of epilepsy. Fainting due to cardiovascular causes occurred because of cerebral anemia, cerebral congestion or some alteration in blood chemistry. Cerebral anemia was associated with heart disease, pain and hypotension; only rarely with hypertension. Cerebral anemia could be brought on by fatigue, excessive heat or cardiovascular inefficiency. Four instances concerned cerebral congestion and loss of consciousness associated with coughing.

The importance of emotion as a factor in the causation of loss of consciousness, particularly in wartime, is well known. Fear and anxiety and the various types of reaction to them are responsible for panic states and particularly for anxiety states. Inability to sustain the stress of flying and associated anxiety was present in 117 cases of this series. Simulation occurs in a few cases and is difficult to differentiate from hysteria.

---

[3] Faget, G. H., and Erickson, P. T.: Chemotherapy of Leprosy, J.A.M.A. **136**: 451-457 (Feb. 14) 1948.

[1] Romano, J., and Engel, G. L.: Studies of Syncope; Differentiation Between Vasodepressor and Hysterical Fainting, Psychosom. Med. **7**: 3 (Jan.) 1945.

[2] Rook, A. F.: Fainting and Flying, Quart. J. Med. **16**: 181 (July) 1947.

ELECTROPHORESIS AND PROTEIN FRACTIONATION

The methods of protein fractionation based on physical differences between the various fractions are peculiarly suitable for the identification and isolation of active protein principles. Even mild chemical treatment, such as precipitation with alcohol, appears at times to denature the active protein principle. In electrophoresis proteins are fractionated according to their rate of movement in an electrical field; this is dependent on the charge on the protein molecule and on its size and shape. In this procedure serum proteins are divided into the principal fractions: albumin; *alpha, beta and gamma globulins,* and *fibrinogen.*

The fractions obtained by electrophoresis, however, should not be considered to be chemically homogeneous without additional evidence, such as chemical analysis, crystallization, ultracentrifugal analysis and, perhaps most important, constant solubility. Insulin, for instance, appears to respond the same to electrophoresis, whether the preparation is crude or purified. In the study of pepsin and chymotrypsinogen, solubility has proved to be a more sensitive criterion of purity than electrophoresis. The electrophoretic fractionation of serum is dependent on the buffer which is used; thus, the alpha-*1*-globulin in barbiturate buffer is included in the albumin fractions when phosphate buffer is employed.

Characteristic electrophoretic patterns of the blood serum proteins have been found to be diagnostic of only a few diseases, such as nephrosis and some types of myalomatosis. Nephrosis is characterized by a profound reduction in serum albumin and gamma globulin while the alpha and beta globulins are increased. In most other cases, however, the electrophoretic picture appears to be characteristic not of the specific disease but of the host's reaction to infection or injury. The common denominator of almost every pathologic state thus examined is a relative or absolute decrease in serum albumin. Severe bodily injury, such as that due to burns, freezing or fractures of bones, results in decreased albumin and increased alpha globulin concentration. Infection results in two distinctive changes in the globulin fraction; in the febrile state there is usually an increase of alpha globulin to several times the normal concentration, though an exception to this increase is seen in malaria vivax due to Plasmodium. A later change is an increased concentration of gamma globulin, the fraction in which antibodies are found. In many infections fibrinogen is increased at an early stage along with alpha globulin. In tuberculosis the pattern changes with the progress of the disease: initially the gamma globulin is elevated, then the alpha-2-globulin increases, and in far advanced cases all globulin fractions are augmented. Because of a decrease in albumin the total proteins remain essentially constant. The electrophoretic patterns of other pathologic states have also been reported, but, as with many chemical and physiologic measurements in disease, this information cannot in most cases be expected to yield a specific diagnosis of the disease. Additional information is needed for the more adequate interpretation of changes in plasma proteins.

Current Comment

ELECTROLYTES AND WATER IN SHOCK

"Shock is a syndrome resulting from the depression of many functions, but in which reduction of the effective circulating volume and blood pressure are of basic importance and in which impairment of the circulation steadily progresses until it eventuates in a state of irreversible circulatory failure."[1] Extended discussion on the nature of the initiating factors in shock has appeared during the past quarter of a century with varying emphasis on their relative importance; however, the ultimate result is diminution of fluid within the blood vessels and the accompanying deleterious hemodynamic effects. Circulatory collapse is the outstanding clinical feature of shock from trauma or burns; in both circumstances it has not been possible to account satisfactorily for the loss of circulatory fluid by the accumulation of water in the tissues or the loss from the surface. A recent report[2] describes experiments designed to trace this "lost" water by following the shift in electrolytes from tissues subject to mechanical injury and to burns. With mice as the subjects, traumatic shock was produced in one hind leg and the opposite leg served as a control. There was a decided loss in potassium and a gain in sodium and water in the injured tissue. As sodium is the characteristic cation of extracellular fluid and potassium holds a like position in cell sap, the conclusion was reached that injury causes a loss of potassium from the tissue cells and a concomitant replacement with sodium and water, thus explaining the local edema. The passage of sodium from the extracellular fluid into the cell lowers the osmotic pressure of the extracellular fluid in the injured tissues and brings about the uptake of water which was observed in the control leg. Similar results were secured when shock was produced by immersing the leg in water at 75 C. The foregoing observations have been interpreted to indicate that as a result of trauma there exists an obvious loss of water as edema fluid or "weeping" at the site of injury and also a hidden loss brought about by swelling of all the uninjured cells of the body. Both circumstances contribute to the reduction of fluid in the circulatory system, thus setting the stage for the development of the clinical signs of shock. A secondary factor is the toxicity of the potassium liberated into the circulation from the injured tissue cells. Measures that are designed to reestablish normal extracellular fluid volume and concentration of sodium while removing the excess potassium would seem to constitute a rational first approach to effective therapy.

---

[1] Wiggers, C. J.: Physiol. Rev. **22:** 74, 1942.

[2] Fox, C. L., Jr., and Baer, H.: Am. J. Physiol. **151:** 155 (Nov.) 1947.

Official Notes

MEETING OF THE BOARD OF TRUSTEES

A CONDENSED REPORT

Chicago, Feb. 19 and 20, 1948

The meeting of the Board of Trustees in Chicago on February 19 and 20 was fully attended, with the exception of Dr. John H. Fitzgibbon.

Fourth International Congresses on Tropical Medicine and Malaria

The Board voted to join the Fourth International Congresses on Tropical Medicine and Malaria as a sustaining member.

Grass Roots Conference

It was decided that the Grass Roots Conference shall be a part of the Annual Session in June and that it shall be held on Sunday afternoon as heretofore. Dr. A. M. Mitchell was selected as chairman of the conference.

Appointment of Representatives

Representatives were appointed to the Committee on Maternal and Child Health and Crippled Children's Services, to the American Academy of Political and Social Science, to the annual meeting of the British Medical Association, to the Midwest Physical Education Association, to the National Conference on Higher Education, to the ninth International Congress on Industrial Health to be held in London September 12-17 and to the Conference on Human Rights and Freedom of Information to be held in Washington, D. C., on March 4.

Dr. Fishbein was authorized to serve as chairman of the council of the International Medical Press, which proposes to hold a conference of medical editors of the world within the next few years.

Drs. E. L. Henderson and R. L. Senseñich were appointed as delegates to the meeting of the World Medical Association and Drs. E. E. Irons and Morris Fishbein as alternates.

Consultant for Council on National Emergency Medical Service

The appointment of Dr. Hugh Morgan as a consultant to the Council on National Emergency Medical Service on matters pertaining to the Army was approved.

Committee Appointments

The following committees were appointed: Committee on Hospital Competition with Private Practice; Committee to Work with the American National Red Cross on its blood bank program, and a Committee to work out a plan for the selection of the recipient of the General Practitioner's medal.

International Congress of Leprosy

Mr. Ralph Creer, secretary of the Committee on Medical Motion Pictures of the A.M.A., was authorized to accept an invitation from the Leonard Wood Memorial Institute (the American Leprosy Foundation) to attend the International Congress of Leprosy, which is to be held in Havana, Cuba, April 3-11.

Appointment of Consultants for Council on Industrial Health

Authorization was given to the Council on Industrial health for the appointment of a group of consultants having special attainments in the field of workmen's compensation to assist in the proper evaluation of medical and administrative policy and relations.

Exhibit on Medical Aspects of Atomic Energy

Approval was given for an exhibit by the Council on Physical Medicine at the Chicago Session on the medical aspects of atomic energy.

Session on Physical Medicine of Section on Miscellaneous Topics

Authorization was given for a Session on Physical Medicine in the Section on Miscellaneous Topics at the June Session of the Association

Conference on Nomenclature

Authorization was given for the calling of a conference on nomenclature on Wednesday afternoon, June 23, in the headquarters of the Association.

Survey of Medical Education

The following proposals of the Council on Medical Education and Hospitals were approved:

1. That the survey of medical education should be initiated at the earliest possible date.
2. That a committee consisting of Drs. Arthur C. Bachmeyer, Joseph C. Hinsey, Victor Johnson, and H. G. Weiskotten, and the secretaries of the Council on Medical Education and Hospitals and the Association of American Medical Colleges ex officio, supervise the conduct of the survey and prepare and publish a report.
3. That the employment of a full time director and such other personnel as may be needed to conduct the survey be authorized.
4. That the headquarters of the survey be maintained in the office of the Council on Medical Education and Hospitals.
5. That this survey be designated a Survey of Medical Education, sponsored by the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical College, and be conducted by the committee whose membership is listed in paragraph 2.

The Board suggested that the name of an outstanding educator be added to the names of the committee members mentioned in paragraph 2, and the suggestion was adopted by the joint-committee.

Appointments to Editorial Boards, Councils and Committees

Appointments were made to various editorial boards, councils and committees to fill vacancies caused by the expiration of terms of service.

Dr. Stanley J. Seeger Named Emeritus Chairman of Council on Industrial Health

The Board voted that Dr. Stanley J. Seeger, who recently resigned from the Council on Industrial Health, be named emeritus chairman of that Council.

Fund-Raising Campaign of American Cancer Society

The Board authorized the publication of an editorial in support of the campaign of the American Cancer Society for funds.

Successor to Dr. Lloyd Noland on Judicial Council

The Board noted with regret the resignation of Dr. Lloyd Noland from the Judicial Council and approved the appointment by the President of Dr. Homer Pearson to fill the vacancy on the council until the next meeting of the House of Delegates.

Nurse Anesthetists

The attention of the Board was called to articles being published in the lay press regarding nurse anesthetists, and it was voted to condemn publicity that is not based on a scientific understanding and that does not accurately reflect the prevailing situation.

Handbook of American Medical Association

The Board voted to publish an announcement in THE JOURNAL that copies of the Handbook of the American Medical Association are available in the headquarters office.

American Academy of General Practice

A conference was held with officers of the American Academy of General Practice, and the Board appointed a liaison committee to that organization, consisting of Dr. Harvey B. Stone from the Council on Medical Education and Hospitals, Dr. E. J. McCormick from the Council on Medical Service and Dr. Wingate M. Johnson from the Board of Trustees.

Proposed Amendment to Internal Revenue Code

The Board authorized its representatives to a meeting of the New York Bar Association to record the vote of the Board in support in principle of the proposal that the Internal Revenue Code be amended to permit physicians doing business as a partnership to deduct the cost of a pension program for themselves and to accord physicians and others doing business as proprietors the same privilege, with the proviso that there should be a reasonable maximum.

Voluntary Support of Medical Education

The need and desirability of developing and organizing a continuing program on a national scale for the promotion of voluntary support of medical education was recognized and the Board authorized that a campaign be conducted.

Funds for Medical Education

In considering bills S. 145 and H. R. 3925, the Board expressed disapproval of the use of federal funds for medical education in any manner by which the government would enter into control.

Registration and Approval of Hospitals for Internship and Residencies

At a meeting on Saturday of a special committee appointed by the Board of Trustees and representatives of the American College of Surgeons, the Council on Medical Education and Hospitals, the American Board of Surgery, the American Board of Orthopedic Surgery and the Advisory Board for Medical Specialties, it was decided to appoint a committee of seven; two members to represent the American Medical Association; two, the American College of Surgeons; two, the specialty boards in surgery, and the secretary of the Advisory Board for Medical Specialties to study the whole matter of the registration of hospitals and their certification for internships and residencies and to work out a mechanism that will avoid duplication. The conference group selected Drs. W. M. Firor of Baltimore and Guy A. Caldwell of New Orleans to represent the specialty boards in surgery; the special committee of the Board selected Drs. Harvey B. Stone and Donald G. Anderson to represent the American Medical Association, and Drs. F. A. Coller of Ann Arbor, Mich., and Dallas Phemister of Chicago have been appointed by the board of regents of the American College of Surgeons to represent that organization. The secretary of the Advisory Board for Medical Specialties is Dr. B. R. Kirklin.

Correction of Inaccuracies in Pronouncement of Dr. Parran Re Shortage of Physicians

The Board voted to request correction of the inaccuracies in the pronouncement of Dr. Thomas Parran, Surgeon General of the United States Public Health Service, with respect to the critical shortage of physicians in the United States which he anticipates will develop by 1960.

Medical Motion Picture Film for British Medical Association

The Board voted to send, with the compliments of the Association, a copy of its film "Medical Motion Picture: Its Development and Present Application" to the Library of the British Medical Association.

Dr. Fishbein to Cooperate in Preparation of Series of Medical Motion Pictures

The Board authorized Dr. Fishbein to continue negotiations with film producers with a view to extending medical education to the public through the use of scientific medical pictures.

Miscellaneous

Many other subjects were considered. Some of them will no doubt come up again for action.

WASHINGTON LETTER

(From a Special Correspondent)

Feb. 18, 1948

Shortage of Physicians in Armed Forces on Increase

Rear Admiral Joel T. Boone, executive secretary, Armed Services Committee on Medical and Hospital Services, following a tour of Army, Navy and Air Force hospitals reported that the shortage of physicians in the armed services is increasing and may endanger the health of American fighting men. The committee is studying possible administrative changes in the service medical departments as a result of unification. Admiral Boone explained that about half of the military physicians now on duty will leave service by July 1, 1949, when the Navy V-12 and the Army specialized training programs end. Under these programs young men were taken into the services and trained as physicians. The admiral estimated that the Navy's staff of physicians would drop frmm 2.900 to 1,482 while the Army would lose about 3.000.

Veterans' Budget Seeks More Medical Personnel

The proposed 1949 budget of the Veterans Administration is reported to provide for a slight increase in medical personnel but a decrease in administrative workers. Veterans Administrator Gray is reported to have refused the request of a House Veterans Committee to delay the current dismissal of 8,500 employees of the agency. The committee had asked for delay in their release until the effect of such dismissal on service to veterans could be ascertained. The agency in a statement explained that the cuts in staff were ordered because present funds "are not sufficient to maintain services and employment at the present level."

Committee Approves Funds for Research Center

The House Appropriations Committee approved immediate provision of $5,000,000 and authorization to spend $40,000,000 to build an eight hundred bed hospital and research center at Bethesda, Md., to house research on mental disorders, heart disease and cancer. The committee reported out the Labor-Federal Security supply bill for 1949 and added $8,000,000 to the original request for funds for the center. An escalator clause was inserted to assure that work starts promptly and that the center is completed as soon as possible. The Federal Security Agency is permitted to contract in excess of $40,000,000 if rising costs of building make this necessary.

GOVERNMENT SERVICES

ARMY

NEW APPROACH TO CONTROL OF VENEREAL DISEASE

Following studies made in 1946, the Army developed a new approach to the control of venereal disease. A phenomenal decrease in the number of cases in American soldiers occurred during 1947. The decrease for the Army as a whole amounted to 40 per cent, and among the soldiers stationed in the United States it amounted to more than 50 per cent.

In considering methods for the control of venereal disease the general staff established the Army Venereal Disease Control Council. Local councils were established at all military installations. There emerged a program, now employed, based on moral, spiritual, psychologic and objective factors. This broadened approach has supplanted previous concepts. Today stress on the moral reasons for good conduct is imparted to the troops through group and individual instruction. Planned entertainment helps to maintain the wholesome interest of the soldier and keeps him off the street when he is off duty. A further aid was the recall of all training films used during the war for venereal disease control and the production of new films reflecting the present program. The first in the new series of motion pictures is entitled "The Miracle of Living"; it dramatizes the rewards of good conduct as well as the effects of venereal diseases on the person's future.

ARMY NURSE CORPS RESERVE

The Surgeon General has summoned fifty Army Nurse Corps leaders to Washington for a two day conference to map out a program to enroll 29,000 Army Nurse Corps officers during 1948, about 25,000 of whom are to accept commissions on an inactive status, continuing in their civilian posts except in time of national emergency. Attending the conference are chief nurses of the six Army areas in the United States and of Army general hospitals and the directors of nursing services in the Far East Command, in Europe and the Antilles.

Under the provisions of an act of Congress of 1947, the Army Nurse Corps became a permanent branch of the military establishment. The law provided for the formation of a reserve corps through which all future assignments of nurses to extended active duty will be made. About two thousand such assignments will be available during 1948.

MEDICAL MEETING IN KOREA

About seventy-five officers attended the medical meeting February 18 at the 382d Station Hospital in Korea The forenoon was given over to ward rounds and departmental conferences. In the afternoon Major Robert M. Hardaway, chief, surgical service, 34th General Hospital, read a paper on regional ileitis; treatment was discussed by Lieut. Wilbur A. Thomas of the 34th General Hospital. Lieut. Col. Warner F. Bowers, surgical consultant (GHQ, FEC) discussed abdominal trauma and the cases observed on the surgical ward rounds. Lieut. Ross A. Miller, chief, surgical service, 382d Station Hospital, read a paper on acute intestinal obstruction, which was discussed by Lieut. Cecil A. White of the 382d Station Hospital and Lieutenant Col. Bowers. Capt. Myrtle N. Nereson, chief, principal nurse, 382d Station Hospital, discussed "The Nursing Care of Colostomies" The scientific session was under the direction of Lieut. Col. Watson E. Neiman, commanding officer, 382d Station Hospital, and the business meeting was presided over by Col. Charles P. Ward, surgeon, 24th Corps. A buffet dinner and social hour were held at the Officer's Club in the evening.

NAVY

NEW REGULAR OFFICERS

The *following five* lieutenants (jg), all graduates of the Navy's V-12 program, have been transferred to the Regular Navy Medical Corps: Richard B. Connor, Columbia, S.C.; Kevin A. Doyle, Glenbrook, Conn.; Avery L. Cotton, Houston, Texas; Charles L. Lear, Montebello, Calif.; and Fred A. Valusek, Newburgh, N.Y.

The following physicians from civil life have recently been commissioned lieutenants in the Regular Navy Medical Corps: George E. Gardner, Philadelphia, and James M. Tuholski, Memphis, Tenn.

RESERVE OFFICERS NOMINATED FOR DUTY

The following lieutenants (jg) of the naval medical reserve, *having completed* the basic refresher course at the Naval Medical School at Bethesda, Md., have been nominated for duty; James E. Hull, Columbia City, Ind.; Dwight H. Smith, Cherry Point, N.C.; DeWitt T. Brock, Camp Lejeune, N.C.; James R. Clarkin, Bronx, N.Y.; John R. Lindsay, *Wilmington*, Del.; Charles E. Boonstra, Lafayette, Ind.; Richard K. Williams, Richmond, Va.; Archie G. Britt, La-Crosse, Wis.; John E. LeDonne, Revere, Mass.; Howard H. Lyons, Linwood, Mass.; Donald H. McCowan, West Chester, Penn., and Grover C. Nabors, Goldville, S.C.

GRADUATE TRAINING

The following medical officers have been approved for graduate training: Comdr. Edward G. Hurlburt, residency in dermatology and syphilology at a Navy Hospital.

Comdr. Joseph A. Forte, course in internal medicine at University of Pennsylvania Graduate School of Medicine, beginning October 1948.

Lieut. Comdr. Ralph D. Ross, additional year's training in internal medicine at the Naval Hospital, San Diego, Calif.

Lieut. (jg) Robert W. Williams Jr., residency in in internal medicine at a Naval hospital.

Lieut. Dale B. Watkins, additional year's training in internal medicine at the Naval Hospital, San San Diego, Calif.

Lieut. (jg) Orville M. Graves Jr., residency in ophthalmology at the Naval Hospital, San Diego, Calif., transfer to U. S. Navy.

Lieut. (jg) John R. Huston, residency in pathology at a Naval Hospital.

Comdr. Lewis E. Hedgecock, course in preventive medicine and venereal disease control at Johns Hopkins University School of Hygiene and Public Health, Baltimore.

Comdr. William F. Lyons, course in preventive medicine at Harvard University, Boston.

Comdr. Theodore E. Hoffman, residency in surgery at the Naval Hospital, Great Lakes, Ill.

Comdr. Richard Lawrence Jr., residency in internal medicine, U.S. Naval Hospital, San Diego, Calif.

Lieut. (jg) Preston R. Bandy, residency in anesthesiology, Naval Hospital, Bethesda, Md.

Comdr. Ronald N. Shelley, course in thoracic surgery and endoscopy at George Washington University School of Medicine, Washington, D.C.

Lieut. (jg) James I. Thorn, training in aviation medicine, School of Aviation Medicine and Research Naval Air Station, Pensacola, Fla.

Capt. Julian Love, Comdr. Bishop L. Malpass, and Comdr. Ross W. Weisiger have completed a course of instruction in internal medicine at Cornell University Medical College, New York.

MISCELLANEOUS

ATOMIC COMMISSION TO SUPPORT CANCER RESEARCH

The Atomic Energy Commission is expanding its assistance to the nationwide work on cancer research by a program which involves radioactive materials, new facilities and financial aid. The program was designed to explore the possible benefits of atomic energy to those with cancer, to assist existing projects and to avoid duplication of work carried on by other governmental agencies, the American Cancer Society and privately endowed foundations and medical research centers. The main points of the commission's assistance are: (1) provision of radioisotopes for cancer research and treatment by qualified United States medical and research workers; (2) support of selected cancer research projects carried on by hospitals and universities; (3) establishment of research facilities, including limited hospital space at four laboratories of the commission, and (4) support of cancer research carried on by the Committee on Atomic Casualties of the National Research Council.

Effective April 1, 1948 all charges except those for handling and transportation will be removed from radioactive iodine (I 131) phosphorus (P 32) and sodium Na(24) to be used in the study and treatment of cancer. Other available useful radioisotopes will be added to the list, as it is determined that they can be supplied on the new basis. The commission warns that radioisotopes have not been found generally useful in cancer treatment as developed at the present time.

These radioisotopes under the new procedure will be obtained as heretofore from the Isotopes Branch, Atomic Energy Commission, Oak Ridge, Tenn.

I 131 has a relatively short half life. Half of its radioactivity is lost after eight days, half of the remainder by the end of the next eight days and so forth. The physician or investigator using the material must make allowance for loss of radioactivity as a result of time lost in shipment. If shipment requires five days, for example, a physician must order about 10 millicuries of I^{131} for every 6 millicuries of material he wishes to administer. The purchase price of I^{131} at Oak Ridge, Tenn., has been $1.70 per millicurie, the unit in which radioactivity is measured. Individual patients may receive a single application of only a few millicuries or a course of treatment extending over a period of weeks, so that the cost of material, apart from handling and shipping, may range from $20 to $200 or more. The price of Na 24 has been $12 per irradiated unit, which contains approximately 20 millicuries. This material has a relatively short half life, and, if an investigation is to extend for a considerable period of time, new lots of material must be procured at frequent intervals. Often an investigator will place an order for one or two units per week, extending over a period of six months or more, so that the saving in cost of material may amount to several hundred dollars.

In announcing increased support for selected cancer research projects related to atomic energy and carried on by independent institutions in various parts of the nation, the commission pointed out that projects which it supports are already under way at the Memorial Hospital for Treatment of Cancer and Allied Diseases, New York; Harvard University; the University of Rochester, and the University of California. At other institutions projects are being selected for support from the special fund for research on cancer now set aside by the commission.

Cancer research facilities will be established at Oak Ridge Hospital, Oak Ridge, Tenn ; Brookhaven National Laboratory, Long Island, N. Y.; Argonne National Laboratory, Chicago, and Los Alamos Laboratory, Los Alamos, N. Mex. Medical schools, clinics, hospitals and other research institutions in each region will be able to make use of the unique equipment in these installations.

The commission emphasized that its part is to provide the facilities to investigators or patients: the research will be carried on by the investigators, not by the commission; also, the hospital beds and research facilities will not be available for the treatment of cancer patients in general. With the limited number of beds, it is necessary that they be used for special studies which may benefit many who suffer with cancer through adding to basic knowledge, rather than solely for treatment of the few who can be accommodated.

FOREIGN SCHOLARSHIPS AVAILABLE SOON

The Fulbright Act authorizes executive agreements with foreign governments under which they may pay in part for sales of American surplus property overseas with scholarships and other educational enterprises in their own countries for American students. The State Department announces that in addition to agreements with China and Burma draft agreements are under consideration by the Philippines, Italy, New Zealand, Greece, Egypt and Belgium. Twenty-two nations are now eligible and are expected to participate in the plan, with an indication that more than $140,000,000 will be devoted to the program within the next twenty years.

Under agreements already completed China and Burma have placed at the disposal of the United States sums which will be used for financing studies, research, instruction and other educational activities for American students in schools in Burma and China. These sums include also the cost of transportation to and from the United States, tuition, maintenance and incidental expenses; they will permit Burmese and Chinese students to study in United States schools located outside this country as well as paying the cost of transportation of foreign students to and from the United States. Plans for making grants available to American scholars have not been completed, but public announcement will be made of the date when application can be received, which is expected to be early in 1948. Additional information can be obtained by writing the Division of International Exchange of Persons, Department of State, Washington 25, D. C.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ARKANSAS

State Medical Meeting.—The Arkansas Medical Society will hold its annual meeting in Little Rock April 15-17 under the presidency of Dr. Lorenzo T. Evans, Batesville. Out of state speakers include:

Irvin E. Hendryson, Denver, Early Diagnosis of Poliomyelitis. Harry E. Bacon, Philadelphia, Cancer of Rectum, and Pelvic Colon.

Paul A. Davis, Akron, Ohio, General Practice of Medicine as related to the American Academy of General Practice. Hedwig S. Kuhn, Hammond, Ind., Industrial Ophthalmology. Ralph L. Ferguson, Vermillion, S.D., The Lymph Node as an Aid in Diagnosis. Carl A. Nau, Galveston, Texas subject to be announced. Richard Cattell, Boston, subject to be announced.

The Past-President's Breakfast will be held at the Hotel Marion April 17 at 7:30 a.m.

CALIFORNIA

Chronic Disease Survey.—At the direction of the 1947 state legislature, the state department of public health has formulated a plan for an extensive investigation of the "problems involved in the reduction of deaths and disability from cancer and other chronic diseases." The outline of the plan was approved by the state board of public health in November, and an advisory committee which was appointed at that time has held its initial meeting. Recommendations and estimated program costs will be placed before the legislature in 1949.

Open Nursery at Stanford Hospital.—A $20,000, fifty-eight crib nursery designed to prevent dangers of diarrhea and respiratory and cutaneous infections, was opened for inspection February 19 at Stanford University Hospital, San Francisco. Each crib is self contained, having its own equipment to prevent cross infection. Funds were provided by the late Mrs. Richard H. Shainwald and her brother, Walter D. Heller, San Francisco, in memory of their parents, Dr. and Mrs. Moses Heller.

FLORIDA

Annual Meeting of Board of Health.--The state board of health, at its annual meeting on February 10, recommended the expansion of four definite activities: abatement of stream pollution with special reference to Florida's beaches and streams; expansion of the Food Handlers' School; intensification of the school health program, and encouragement of counties to provide better quarters for their health units. The board reelected Dr. Herbert L. Bryans, Pensacola, as president. Dr. Wilson T. Sowder, state health officer, is executive secretary.

ILLINOIS

New Wing at County Hospital.--The Memorial Hospital of Du Page County, Elmhurst, recently opened a new $750,000 wing which adds one hundred beds to the one hundred and twenty-five beds in service, provides new surgical suites, a pediatric unit, auditorium and medical record library and will permit enlargement of the x-ray department, emergency section and delivery rooms. The Du Page County Medical Society, which henceforth will hold its meetings at the hospital, heard Dr. Willis J. Potts, Chicago, speak on "Recent Advances in Children's Surgery" at the opening of the new auditorium on February 18.

Chicago

Personal.--In January Dr. Leon Unger lectured on bronchial asthma before the Sociedad Mexicana de Alergistas in San Luis Potosi, Mexico, and later before the staff of the Children's Hospital, Mexico, D.F.

The Bacon Lectures.--Dr. Nicholson J. Eastman, professor of obstetrics at Johns Hopkins University School of Medicine, Baltimore, will deliver the annual Charles Sumner Bacon lecture at 1 p.m. April 14 at the University of Illinois College of Medicine on "Pelvic Mensuration; a Study in the Perpetuation of Error." The Bacon series was inaugurated in 1928 in honor of the late professor emeritus of obstetrics and gynecology. At that time members of the faculty and friends of Dr. Bacon contributed $5,000 to found the lectureship.

KANSAS

Dr. Murphy Appointed Dean.—Dr. Franklin D. Murphy, Kansas City, has been appointed dean of the University of Kansas School of Medicine effective July 1 to succeed Dr. Harry R. Wahl, dean since 1924. Besides serving as dean, Dr. Murphy will be an associate professor of internal medicine. He is the son of the late Dr. Franklin E. Murphy, a founder of the medical school and member of the faculty. Dr. Murphy obtained his medical degree at the University of Pennsylvania School of Medicine, Philadelphia, 1941; from 1944 to 1946 he was a captain in the army medical corps and worked with a research unit at Memphis, Tenn. Dean Wahl, who asked to be relieved of his duties as dean a year ago, will continue to teach at the medical school as head of the department of pathology.

LOUISIANA

Public Relations Program.—The Council on Medical Service and Public Relations of the Louisiana state Medical Society has developed a public relations program which provides for radio programs on health. A Speakers Bureau is to be established and lay persons and members of the profession will appear before all interested groups to talk on health, economics of medicine, voluntary health insurance and other subjects. An educational health column is to be released weekly for newspapers throughout Louisiana. A News Bureau will be established to disseminate information to the public relative to scientific advancements by members of the medical profession and to advise the public what the medical profession is doing in their behalf. The Louisiana Physicians Service, offering surgical and obstetric care, is sponsored by the Louisiana State Medical Society. It is proposed that the society assist in the establishment of health councils in every parish throughout the state. Other phases of the program include a closer relationship with other health agencies, societies and civic clubs and a campaign to enhance patient-physician relations. In general, the program will provide a medium to maintain adequate medical care at a cost which the patients can afford and at the same time to keep medicine a private enterprise.

MARYLAND

McCollum-Pratt Fund.—Johns Hopkins University, Baltimore, has received a $500,000 endowment, the McCollum-Pratt Fund, to be used for study of the function of copper, boron, cobalt, manganese and other minerals in living organisms. The principal and interest will be expended over a ten year period. The fund was named in honor of Elmer V. McCollum, LL.D., an authority on nutrition, and John L. Pratt, Fredericksburg, Va., university trustee and donor.

MICHIGAN

Ophthalmologic Clinics.—Dr. Albert D. Ruedemann, professor of ophthalmology, Wayne University College of Medicine, Detroit, will give clinics on beta irradiation in ophthalmology at the City of Detroit Receiving Hospital every other Wednesday from 10 a.m. to noon until June, beginning March 10. All ethical specialists are invited to attend.

MINNESOTA

Society of Anesthesiologists.—At a meeting in Minneapolis Nov. 15, 1947, a group of members of the American Society of Anesthesiologists formed the Minnesota Society of Anesthesiologists as an affiliate of the national organization. Dr. Ralph T. Knight, Minneapolis, was elected president and Dr. Frank Cole, Duluth, secretary-treasurer.

The Judd Lecture in Surgery.—The fifteenth E. Starr Judd Lecture will be given by Dr. Alfred W. Adson, professor of neuro-surgery at the Mayo Foundation, Rochester, April 29 at 8:15 p. m. in the Auditorium of the Museum of Natural History. Dr. Adson's subject is "The Evolution of Neurosurgery." The late E. Starr Judd, an alumnus of the University of Minnesota Medical School, established this annual lectureship in surgery a few years before his death.

Cancer Detection Center Opens.—A cancer detection center operating on a research basis opened in February at the University of Minnesota Hospital, Minneapolis. The effectiveness of examining apparently well persons in order to find early cancer will be determined. Persons who need treatment will be referred to their physicians. The center is financed by the Minnesota Division of the American Cancer Society, the U. S. Public Health Service and the University of Minnesota. Dr. David State of the hospital staff will serve as acting director. The center is to be open Tuesday and Thursday afternoons from 3 to 5 o'clock. Examinations will be by appointment only

Dr. Colvin Honored.—The surgical staff of the Ancker Hospital, St. Pall, honored Dr. Alexander R. Colvin at a dinner in the Minnesota Club January 19. Dr. Colvin has practiced in St. Paul since 1903 except for his service in the army medical corps during World War I. He has for the past thirty years been head of the surgical service of the hospital.

X-Ray Surveys at Colleges and State Institutions.—The Minnesota Department of Health launched its x-ray survey program in January. The goal is an annual roentgenologic examination of the chest of every Minnesota college student and all persons in state institutions. Colleges are assisting in financing the program. The state program combined with a community mass x-ray survey are expected by 1950 to bring to every person in the state an opportunity for roentgenologic examination.

MISSISSIPPI

Scholarship Loan Applications. -- The state medical education board has announced that all students interested in applying for medical education scholarship loans to become effective in autumn of 1948 should contact the Jackson office of the board, Room 37, North Street Building at once for information and application forms. Applications received during the spring months will be considered by the board on and after June 1. Over a hundred students have already requested applications for medical education loans to become effective in September.

NEW MEXICO

Clinical Society Lectures.—The New Mexico Clinical Society has arranged a schedule of lectures for the next few months to be held in the Museum of Anthropology, Santa Fe, with the following speakers:

April 16, Chester M. Jones, gastroenterologist, Harvard Medical School, Boston.

April 30, Francis Rackemann, allergist, Harvard.

May 3, Hamilton Montgomery, dermatologist, Mayo Clinic, Rochester, Minn.

May 14, Walter C. Alvarez, gastroenterologist, Mayo Clinic

June--Peter Heinbecker, surgeon, Washington University School of Medicine, St Louis.

July--Louis S Goodman, pharmacologist, University of Utah, Salt Lake City.

August--Oscar O. T Clagett, chest surgeon, Mayo Clinic, Rochester Minn. C. Allen Good, radiologist, Mayo Clinic, Rochester, Minn.

OHIO

Memorial Library.—The library at Peoples Hospital, Akron, consisting of about seven hundred selected volumes, including many of the current periodicals, has been named in honor of Dr. Jay D. Smith. He was interested in medical education and gave freely of his time and thought to Peoples Hospital while a member of the surgical staff from 1914 until his death, Nov. 17, 1947.

Appointed Head of Department of Urology.—Dr. Charles C. Higgins, Cleveland, has been named head of the department of urology at the Cleveland Clinic to succeed Dr. William E. Lower, one of the four founders of the Cleveland Clinic, who is retiring from active practice. Dr. Higgins graduated in medicine from Washington University School of Medicine, St. Louis, in 1923. He is president-elect of the American Urological Association, president of the Clinical Society of Genito-Urinary Surgeons and a member of the American Board of Urology.

PENNSYLVANIA

State Society to Publish History.—The history of the Medical Society of the State of Pennsylvania is being prepared in book form for publication in connection with the centennial celebration of the organization in October. Dr. Howard K. Petry, Harrisburg, former president of the society, is in charge of research, writing and production of the history. Authentic stories of unusual interest relating to physicians of bygone years will be welcomed by Dr. Petry for consideration. The headquarters of the society is at 230 State Street, Harrisburg.

Philadelphia

Faculty Appointments.—Hahnemann Medical College has announced the appointment of the following: Dr. John E. Gregory, Philadelphia, professor of pathology and head of the division of pathology; Amedeo Bondi, Jr., Ph.D., professor of bacteriology and head of the department, and Dr. Emerson A. Read, Quincy, Mass., assistant professor of physiology. Four newly appointed full time instructors in the clinical departments are Dr. Alexander W. Ulin, Cincinnati department of surgery; Drs. Otto H. Janton, Detroit, and Albert M. Lupton, Lewes, Del., department of medicine, and Dr. Joseph N. Seitchik, Philadelphia, department of obstetrics

County Postgradute Institute.—The twelfth Annual Postgraduate Institute of the Philadelphia County Medical Society will be held at the Bellevue Stratford Hotel, April 20-23. Topics to be discussed include: problems in obstetrics and gynecology, newer drugs and procedures, surgery of the ambulatory patient, fractures, the painful breast, neuropsychiatric disorders, problems of the aged, the acute abdomen, gastrointestinal disorders and otolaryngolical problems. At two evening sessions cancer and pediatrics will be discussed. For information address Dr. Gilson Colby Engel, Director, 301 South Twenty-first Street, Philadelphia 3.

TEXAS

Society Election.—The Texas Radiological Society on January 17 elected Dr. Leslie M. Garrett, Corpus Christi, president; Dr. John J. Faust, Tyler, president-elect; Dr. Roscoe P. O'Bannon, Fort Worth, secretary-treasurer. The next annual meeting will be held in Fort Worth January 7-8, 1949.

Rehabilitation Clinic Dedicated.—At a conference on physical medicine at the University of Texas Medical Branch, Galveston, a Rehabilitation Clinic in connection with the John Sealy Hospital was dedicated. Funds for the clinic were provided by the Monsanto Chemical Company, St. Louis, in appreciation of the services of the John Sealy Hospital in connection with the Texas City disaster last spring. Dr. Frank H. Krusen, professor of physical medicine, Mayo Foundation, Rochester, Minn., gave the dedication address.

WASHINGTON

Narcotic Violation.—Dr. Alphonse de Pierre-Hall, 302 South Thirteenth Street, Tacoma, pleaded guilty in the United States District Court in Tacoma to violation of the federal narcotic law and on January 2 was fined $1,500 and placed on probation for a period of six months.

Course in Applied Science.—The University of Washington School of Medicine, Seattle, has begun a course in the applications of basic sciences to disease. The course is arranged to bring together the physiologist, anatomist, biochemist, pharmacologist, pathologist and microbiologist with the clinicians. Classes, designed primarily for members of the resident staffs of hospitals who wish to qualify eventually for admission to specialty board examination, are being conducted each Thursday evening from 7 to 9 o'clock at Harborview Hospital Annex.

WEST VIRGINIA

Community Observes Doctor's Anniversary.—Dr. Edward L. McElfresh, Point Pleasant, completed fifty-five years of medical practice in Mason County on March 5, amidst a countywide observance of his anniversary. A program was arranged by the citizens of Point Pleasant and Mason County for the afternoon of March 7, and was attended by Dr. McElfresh's confreres from Mason and adjoining counties. In his honor a biographic sketch was read in all the schools of Mason County on March 5, pointing out the rigors of his pioneer practice and his modesty and devotion to duty throughout his fifty-five years of practice.

HAWAII

Annual Report of Board of Health.—Deaths from acute communicable diseases in the Territory of Hawaii reached an all time low in the fiscal year ending June 30, 1947, in spite of a rapidly expanding population. The tuberculosis death rate, after continuing at about 55 per hundred thousand population for several years, dropped to 49. However, the incidence of some communicable diseases showed an increase over the previous year: whooping cough from 9 to 616 cases; mumps from 277 to 597; chickenpox from 789 to 2329; typhus from 70 to 82 and poliomyelitis from 12 to 36. The leading cause of death is heart disease and the second is cancer. The population of the territory as of June 30, 1947 was estimated at 525,477, an increase of 1.2 per cent over the previous year. The crude mortality rate was six deaths per thousand population, the same as for 1946. The infant mortality rate for the territory was 31.2 per thousand live births, while it was 36.1 for the U. S. registration area in 1946. The maternal death rate for the territory dropped from 1.5 per thousand live births to 1.2 in 1947, the lowest ever recorded in Hawaii.

Child health conferences were held at regular intervals in one hundred and eighteen different locations throughout the territory and were participated in by fifty-one physicians, 5,608 infants, and 6,137 preschool children. Maternal health conferences were held at forty different centers by twenty-eight different physicians and were attended by 1,352 women.

The Bureau of Crippled Children had 2,305 crippled children under 21 years of age on the register, of whom 1,249 received some type of service from the bureau. During the year 382 new admissions were made to the register and 151 were discharged as cured, overaged or diseased. Fourteen traveling clinics which were held by the psychiatrist for the Bureau of Mental Hygiene served 359 patients and rendered 199 consultations concerning patients.

Human plague for the second successive year was not reported in the territory; however, 5 plague infections, 1 rodent, 1 mass flea inoculation, and 3 mass tissue inoculations were reported in the Hamakua district, the lowest number of plague infections reported in this area since 1932. One rodent plague infection was found on the island of Maui.

The Territorial Board of Health was designated by the governor as the agency to carry out the purposes of the new federal hospital survey and construction act; later Dr. William B. Meister, colonel, U. S. Army (retired), was employed to administer the act for the territory.

The total expenditure by the health department during the year was $1,942,954.99, of which $487,846.56 came from federal funds. The president of the Board of Health was Dr. Charles J. Wilbar Jr.

GENERAL

Florida Cited for Progress of Health Program.—Florida's public health program has been recognized by the Commonwealth Fund as making the "liveliest progress" of the six states receiving financial aid from the fund last year. The other states were Tennessee, Mississippi, Oklahoma, Louisiana and Kentucky. Florida now has sixty-two counties with local health departments.

Society for Prevention of Blindness—The National Society for the Prevention of Blindness, Inc., will hold its annual conference at the Radisson Hotel, Minneapolis, April 5-7. Subjects under discussion include public health responsibility for eye health, vision education, organizing the community for sight conservation, industrial eye care, scientific advances in prevention of blindness and education of the exceptional child.

Resolution Approves Nurse Anesthetists.—The Board of Regents of the American College of Surgeons, at a meeting on February 22, adopted a resolution commending the services of nurses who have had special training in the administration of anesthetics and recommending the continuance of training courses in this field for nurses. The American College of Surgeons is of the opinion that, in view of the inadequacy in number of physician anesthesiologists and the splendid record of achievement of nurse anesthetists, institutions engaged in the training of nurses for this purpose should be encouraged to continue their program.

The Louis Livingston Seaman Fund.—The New York Academy of Medicine announces the availability of the Louis Livingston Seaman Fund for the furtherance of research in bacteriology and sanitary science. There is $1,200 available for assignment in 1948. This fund is provided by the terms of the will of the late Dr. Louis Livingston Seaman and is administered by a committee of the New York Academy of Medicine under the following conditions: 1. The committee will receive applications either from institutions or individuals up to April 15, 1948. Communications should be addressed to Dr. Wilson G. Smillie, chairman of the Louis Livingston Seaman Fund, 1300 York Avenue, New York, 21. The fund will be expended only in grants for investigation or scholarships for research in bacteriology or sanitary science. The expenditures may be made for securing of technical help, aid in publishing original work and purchase of necessary books or apparatus.

FOREIGN

Germany's Only Cyclotron.—The only practical cyclotron in Germany, according to David Nichol, foreign correspondent for the *Chicago Daily News*, has stood idle at the Kaiser-Wilhelm institute for more than two years; its use, however, was authorized recently by the four power Allied Control Council in Berlin. The cyclotron has been repaired and is expected to begin operations in March to produce for German physicians radioactive substances for research in the study and treatment of certain diseases; also to conduct basic research on methods of handling and using radioactive isotopes. The Heidelberg cyclotron is small compared with the new cyclotron being developed in the United States. It is said to command a maximum of about 12,000,000 volts, while the newest American cyclotrons are many times as powerful.

Deaths

Henry Fernand Ader ⊕ New Orleans; born in New Orleans, March 7, 1884, Medical Department of Tulane University of Louisiana, New Yrleans, 1906; member of the city board of health; assistant surgeon in the U. S. Public Health Service during World War I, serving as director of the bureau of venereal diseases for the state of Louisiana; at one time on the faculty of the New Orleans Polyclinic; from 1927 to 1929 member of the faculty of the Presbyterian Hospital School for Nurses, teaching diseases of the ear, nose and throat; formerly visiting surgeon, ear, nose and throat service of the New Orleans Hospital and Dispensary for Women and Children, visiting surgeon chief of ear, nose and throat service at the Presbyterian Hospital; on the staff of the Charity Hospital; chief of the ear, nose and throat department of the French Hospital, where he died Dec. 28, 1947, aged 63, of myocarditis.

William Henderson Marshall ⊕ Flint, Mich.; born in Brampton, Ontario, Canada, March 24, 1874; Trinity Medical College, Toronto, Canada, 1901; past president of the Northern Tri-State Medical Association; past president and secretary of the Genesee County Medical Society; past president of the Michigan Trudeau Tuberculosis Society; fellow of the American College of Physicians; for six years a member of the Michigan State Board of Registration in Medicine; served during World War I; for fifteen years chief of the medical service at the Hurley Hospital, where since 1938 he had been director emeritus of the department of internal medicine, and where he died January 8, aged 73, of heart disease.

Thomas J. Crowe, Dallas, Texas; born in New York June 18, 1861; Homeopathic Medical College of Missouri, St. Louis, 1887; for many years secretary of the Texas State Board of Medical Examiners, of which he was a past president; past president of the Federation of State Medical Boards of the United States; served as a member of the National Board of Medical Examiners; formerly chairman of the city board of health; past president of the Texas Homeopathic Medical Association; affiliated with the Baylor University and Parkland hospitals; died January 1, aged 86, of heard disease.

Henry J. Gramling ⊕ Dousman, Wis.; St. Louis College of Physicians and Surgeons, 1899; past president of the Milwaukee County Medical Society; for many years a member and at one time secretary of the state board of medical examiners; formerly councilor of the twelfth district of the State Medical Society of Wisconsin; served during World War I; formerly on the faculty of Marquette University School of Medicine; affiliated with St. Luke's Hospital in Milwaukee, where he was chief of staff for many years; died Dec. 10, 1947, aged 73, of injuries received in an automobile accident.

Fred Taylor Andrews, Bay City, Mich.; Detroit College of Medicine and Surgery, 1918; member of the American Medical Association; served as director of the Bay County Health Department; formerly associated with the Fisher Body Division of the General Motors Corporation in Lansing; an officer during World War I; president of the Bay County Society for Crippled Children; affiliated with Mercy Hospital and General Hospital, where he died Dec. 21, 1947, aged 58, of carcinoma of the brain.

Robert E. Flood, Gladwin, Mich.; Louisville (Ky.) Medical College, 1897; served as director of the Tri-County Health Department; affiliated with the James Decker Munson Hospital in Traverse City; died Dec. 7, 1947, aged 77, of coronary occlusion.

John Andrew Freese, Detroit; Harvard Medical School, Boston, 1907; member of the American Medical Association; died recently, aged 71.

Samuel Friedman ⊕ New York; Bellevue Hospital Medical College, New York, 1895; member of the National Gastroenterological Association; died Dec. 14, 1947, aged 73, of coronary thrombosis.

Edwin Motley Fuller ⊕ Bath, Maine; Medical School of Maine, Portland, 1904; member of the New England Roentgen Ray Society; fellow of the American College of Surgeons; instrumental in the founding and president of the medical staff of Bath Memorial Hospital; died Dec. 2, 1947, aged 67

William Henry Gambill, Centralia, Ill.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1910; member of the American Medical Association; served during World War I; past president of the Marion County Medical Society and the Centralia Township High School Board; affiliated with St. Mary's Hospital; served as chairman of the advisory board of the Illinois State Department of Conservation; died Dec. 14, 1947, aged 65, of coronary thrombosis.

Sidney Britten Goff ⊕ Eaton Rapids, Mich.; Rush Medical College, Chicago, 1931; served during World War II; died suddenly, Dec. 27, 1947, aged 48.

Mark M. Kerr, Miami, Fla.; American Eclectic Medical College, Cincinnati, 1894; died recently, aged 87.

Robert Edward Longino, Biloxi, Miss.; University of Nashville (Tenn.) Medical Department, 1901; formerly state sanitary inspector and health officer of Coahoma County; died Dec. 18, 1947, aged 69.

William Major ⊕ Peoria, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; past president of the Peoria Medical Society; affiliated with Proctor Hospital; died in St. Francis Hospital Dec. 24, 1947, aged 74, of carcinoma of the urinary bladder.

Gottlieb Joseph Marum ⊕ Greenville, Miss.; Universität Köln Medizinische Fakultät, Köln, Prussia, Germany, 1919; died Dec. 19, 1947, aged 54, of heart disease.

Gilbert Lewis McBee ⊕ Pendleton, Ore.; University of Oregon Medical School, Portland, 1926; fellow of the American College of Surgeons; past president of the Umatilla County Medical Society; member of the board of education in 1946 and 1947; affiliated with St. Anthony's Hospital, where he died Dec. 22, 1947, aged 45, of carcinoma.

Robert Lyness McCready ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1907; formerly professor of gynecology and obstetrics at the New York Polyclinic Medical School and Hospital; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; fellow of the American College of Surgeons; for many years affiliated with the Lenox Hill Hospital; died Dec. 14, 1947, aged 63, of cerebral hemorrhage.

Thomas Edward McGurk ⊕ Cape Girardeau, Mo.; St. Louis University School of Medicine, 1925; served on the staffs of the Missouri Pacific and St. Mary's hospitals in St. Louis; died Dec. 1, 1947, aged 45, of injuries received when his automobile struck a bridge abutment.

Florence Jess Correll McKenna, Los Angeles; State University of Iowa College of Medicine, Iowa City, 1910; died Dec. 22, 1947, aged 60, of cerebral hemorrhage.

Ocy May Crawford Johannes McKinley ⊕ Cleveland; University of Pittsburgh School of Medicine, 1926; a member of the board of trustees of Booth Memorial Hospital and the Woman's Hospital, where she died Dec. 17, 1947, aged 51, of carcinoma of the cervix uteri.

William Henry McLaughlin, Providence, R. I.; Dartmouth Medical School, Hanover, N. H., 1894; member of the American Medical Association; served on the school committee; affiliated with St. Joseph's Hospital; died Dec. 6, 1947, aged 78, of valvular heart disease.

Philip Howard Pettay, Flushing, Ohio; Starling-Ohio Medical College, Columbus, 1910; member of the school board; served as a physician for the Baltimore and Ohio Railroad; affiliated with the Martins Ferry (Ohio) Hospital; died recently, aged 71, of cerebral hemorrhage.

Eleanor L. Scull, Naples, Fla.; Woman's Medical College of Pennsylvania, Philadelphia, 1898; died Dec. 18, 1947, aged 81.

Daniel Joseph Sullivan Manchester, N. H.; Tufts College Medical School, Boston, 1916; fellow of the American College of Surgeons; died Dec. 16, 1947, aged 56.

Harvey E. Tucker, Lee's Summit, Mo.; Eclectic Medical University, Kansas City, 1901; retired druggist; died Dec. 9, 1947, aged 80.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Feb.20. 1948

Recent Researches On Synthetic Antihistaminics

Professor Pasteur Vallery-Radot's service at the Broussais Hospital conducts research on allergy and synthetic antihistaminic drugs. After conducting experiments, Drs. B. Halpern, J. Hamburger and S. Cruchand have reported that previous injection of 3,277 R.P. (N-(beta-dimethylamino- - Methyl -ethyl) phenothiazine) prevents, in 100 per cent of cases, acute pulmonary epinephrine-induced edema in rabbits. When given following the onset of edema, the drug appears curative. This same effect was noted in rabbit lung edema induced by chloropicrin (a war gas, trichloronitromethane) in which the drug appeared equally curative. Study of the use of the drug against other war gases is continuing.

In studies with the same drugs, Halpern and Laubsher reported that in 8 of 10 patients with allergic conditions there was an extremely great increase in capillary resistance beginning one to two hours after injection and persisting up to forty eight hours. In *nonallergic* patients the antihistaminic drugs did not appruciably modify capillary resistance.

Drs. Halpern, Perrin and Dews reported work on the local anesthetic powers of certain antihistaminic agents. They reported that compounds 3,300 R.P. and 3,376 R.P. show local anesthetic power four to six times greater than that of cocaine. They concluded from this that certain local effects of these drugs may be attributed to their anesthetic rather than their antihistaminic properties.

Streptomycin

At the Hospital *for* Sick Children, Professor R. Debre has instituted routine streptomycintherapy for tuberculous meningitis in children comprising one week of 100,000 units of the agent per kilogram of body weight per day parenterally plus two intrathecal injections of 50,000 to 100,000 units. After the first week, the patient receives 50,000 units per kilogram per day until cured. Treatment is suspended only after the disappearance of all pathologic signs. In 5 children with neurosurgical complications, surgical intervention disclosed a leptomeningitis or a pachymeningitis. A sixth child had a large tubercle near the chiasma. Operative intervention was highly successful in 2 cases. Early diagnosis was considered of utmost importance in predetermining the result of treatment. Of 100 children treated by Professor Debre, 46 have been successfully cured.

Ch. Mattei, Marseilles, presented results of treatment of 130 patients with streptomycin. Among these, of 22 cases of serious tuberculous laryngitis, 4 recovered and 17 were greatly improved. Of 20 patients with tuberculous meningitis, 17 recovered and 3 died. Pulmonary cavities associated with miliary or other tuberculosis closed rapidly during the course of intramuscular treatment with streptomycin. Relapses among all patients were frequent when insufficient dosage was employed. The author believed that neurotropism might well be responsible for the frequent appearance of neurologic complications from use of streptomycin. Such accidents were compared with similar complications which occur during gold therapy.

Congresses

The twelfth Congress of French-Speaking Pediatricians is scheduled in Paris from May 10 to 15, 1948 with Professor Edmond Lesne, member of the National Academy of Medicine, presiding. Subjects on the program include (1) toxic syndrome of nurslings: (A) etiologic, pathologic and therapeutic study by J. Levesque, Paris; *(B)* biologic study by Professor Fanconi, Zurich; (2) bronchial dilation in children: *(A)* anatomic and radiologic study, R. A. Marquezy and P. Renault, and (3) disorders of the function of speech in children, C. Launay, Paris. Full information may be obtained by corresponding with the general secretary, Dr. A. Marquezy, 16 Avenue Georges V, Paris (8).

The Congress of Longevity will be held under the auspices of the Vittel Medical Society at Vittel, June 12-13, 1948, with P. Joannon, professor of hygiene and preventive medicine at the Paris Faculty, presiding. Principal items of discussion relate to adult hygiene and the physiopathology of senescence, diseases of middle and old age, and improvements of sanitary and social hygiene measures necessary to extend life expectancy. The congress has been divided into several sections, which include (1) biology and clinics, (2) hygiene and general therapeutics and (3) statistics and sociology. Communications regarding the congress should be addressed to the general secretaries, Dr. Boigey at Vittel (Vosges), or Professeur Agrege M. Deparis, Laboratory of Hygiene of the Paris Faculty of Medicine, 21 Rue de l'Ecole de Medecine, Paris.

MADRID

(From Our Regular Correspondent)

Jan. 12, 1948.

The Midbrain-Pituitary Regulation of Carbohydrate Metabolism

At the Digestive Pathology and Nutrition Congress held in Spain, Dr. J. Andreu Urra, professor at Seville University spoke on The Midbrain-pituitary regulation of carbohydrate metabolism. He summarized his research since 1935, which was started in collaboration with Grünthal and Stryeck, studying the physiology of the midbrain-pituitary region. He mentioned the experimental and clinical facts which proved the part of the midbrain in the regulation of carbohydrates, saying that for the time being this regulation cannot be localized in any well defined cell group and accepting Hess's two anatomicophysiologic zones: the ergotrope, or sympathetic, and the trophotrope, or parasympathetic. While the posterior lobe of the pituitary has little or no importance as regards carbohydrate metabolism, the anterior lobe intervenes decisively, exercising its action through the various factors whose unity or plurality is still not clear.

The author and his collaborators have not been able to prove any variations in the regulation of glycohemia by acting through the optic midbrain-pituitary system. Finally, studying the main arguments in favor of the insular pathology of diabetes, he expressed the opinion that the pituitary factors are fundamental in this conection and that "in diabetes mellitus we must always accept the existence of an insulin deficiency, which is surely constitutional, and whose manifestation in the form of diabetes will be easier understood when to the pancreatic failure there is added a pituitary decompensation." In the field of therapeutics he advised going on with radiotherapy of the pituitary. In his experience the gonadal hormones have proved useless. *This report of Professor Andreu's school enhances the reputa*tion of the Seville Faculty of Medicine and is a tribute to the school of Professor M. Banuelos (Valladolid), where Dr. Andreu was trained.

National Cardiology Congress

The second National Cardiology Congress was held in Barcelona Dec. 11-14, 1947. The inaugural session was held in the assembly hall of the Royal Academy of Medicine, the old chair ofanatomy in which the famed Ginbernat once taught. In the audience were the civil governor of Barcelona, the president of congress, Professor A. Pedro y Pons, Dr. J. Framis de Mena, secretary of the Organizing Committee of the congress, and other notable persons. Dr. A. Crespo Alvarez lectured on the social aspect in diseases of the circulatory system and suggested regulations for the Spanish Cardiology Society and the campaign to help patients studied jointly by the members of the committee of the society.

On December 12 at the Doctors' Club, Professor L. Trias de Bes, director of the Infectious Diseases Hospital of Barcelona, read the first paper, on "Acute and Subacute Endocarditis." The report was warmly applauded in tribute to the author and his collaborators: Professor J. Sanchez Lucas, author of a complete anatomicopathologic study of endocarditis; Dr. Foz Tena, who investigated the bacteriologic aspects of endocarditis; Dr. Gras Riera, entrusted with the biologic aspects, especially of the plasmatic syndrome, and Dr. Cabre, who studied the dermatologic features. They came to the conclusion that there are two types of endocarditis of slow malignant evolution: (1) nonbacteremic, in which prognosis is more serious and which the authors suspect may be the evolutive malignant rheumatic endocarditis mentioned by some classic authors, and (2) bacteremic, including all forms of bacterial endocarditis of a subacute nature, whatever the germ that produces them. The evolution of each of these types is totally different, since the latter responds well to treatment with antibiotics while the former is nearly always fatal. Drs. J. Jimenez Diaz, A. Pedro y Pons, M. Soriano Jimenez, J. Gilbert Queralto, M. Beltran Baguena, T. Alday, J. Lamelas, F. Vega Diaz and many others took part in the debate on this report. In the afternoon Dr. Juan Lopez Brenes, a collaborator of Professor C. Jimenez Diaz, read a report on "Myocardial Infarct," in which he set forth his wide experience of the subject with electrocardiographic documentation. This report was also discussed by Drs. Adrio, Azpitarte, Vela, Benot Lozano, Bozal, Gonzalez Suarez, Codina Altes, Pijoan, Bravo, Clavera, Juncadella, Cornella, Soriano, Ciscar, Balcells, Cuellar, Duque Sampayo, Ortiz, Perez Gonzalez, Vega Diaz, and Roda. On December 13 Dr. A. Azpitarte from Granada read the third report on "Acute Tachycardias." The author reviewed all aspects of tachycardiac paroxysmal arrhythmias. In the afternoon a lecture was given by Dr. C. Jimenez Diaz, of the Madrid Faculty of Medicine, on "Arterial Hypertension." He submitted a report on the subject at the First National Cardiology Congress three years ago. After this a lecture was given by Dr. J. Lamelas, head of the cardiology department of the Valdecilla (Santander) on "Cardiopathies and Pregnancy." Later the Spanish Cardiology Society held a meeting at which Dr. J. Lopez Brenes spoke of the work done during the last three years and the financial difficulties which had to be overcome. The committee was then reelected for the next three years. The number of members attending the congress was one hundred and sixty-eight, besides one hundred and twenty-five collaborators. Visits were made to the National Museum of Montjuich, to the "Spanish Village" of Barcelona (a quarter especially devoted to displaying the customs and dresses of the various Spanish regions), a gala performance at the Liceo theatre, receptions and a farewell lunch at the Windsor Restaurant, where Profesor A. Pedro y Pons again spoke, wish them farewell in a few stirring words. The second National Cardiology Congress was an immense success.

The Spanish Journal of General and Applied Psychology

A new journal, entitled *Revista de Psiocologia General y Aplicada*, has just started publication in Madrid under the editorship of Dr. Jose Germain, who was director of the National Institute of Psychotechny until the end of the civil war. The object of the review is to present psychologic questions in all their amplitude, from those touching on philosophy to their more concrete applications in medicine and pedagogy, industry, and economic and social sciences. The first three issues of the new journal have already appeared.

BELGIUM

(From Our Regular Correspondent)

Liége, Feb. 18, 1948.

Intoxication by Aromatic Hydrocarbons

In the Belgian review of Social and Occupational Medicine Merlevelde, who is connected with a plant manufacturing chemical products, explains the present status of intoxication by hydrocarbons. His studies of the physiopathology of amino derivatives show that they exert a special action on the blood and produce anemia. They act equally on the nervous system and skin and secondarily on the bladder. Merlevelde does not limit himself to a report on the classic signs of poisoning by aniline; he investigated variations in the iron content of the plasma; he has studied the action of the aromatic products on the sedimentation speed and has investigated the importance of ascorbic acid on these poisonings. He has established that the resistance of the organism to benzene is increased by prophylactic administration of ascorbic acid. Merlevelde has verified these factors in workers who are exposed to aromatic products and their derivatives, and he has completed his investigations by experiments on guinea pigs. It seems that ascorbic acid acts as an antidote to these toxic substances.

Merlevelde takes up the question of the treatment of aniline poisoning, the methods of chemical detection and the various measures of technical and personal prophylaxis which he found expedient to employ.

Epidemic of Oil Pustules

Malter presented before the Belgian Society of Occupational Medicine an interesting contribution on lesions caused by industrial oil. He observed a veritable epidemic of pustules in different metallurgical factories in the region of Liége. This disorder appeared, particularly during the war period, due to the use of oils of inferior quality or the reuse of oils. Malter describes the industrial operation which gives rise to these disorders with the passing and repassing of the oil from the machine to the reservoir. He shows how this oil becomes infected by contact with skins previously infected with staphylococcic lesions. Specimens of oil obtained at the level of the machines revealed that they contain more than 90,000 particles of iron per cubic millimeter and staphylococci in large numbers.

In reviewing the literature, Malter thinks the authors have not considered all the factors in this disorder. In his opinion it is necessary to consider the mechanical factor due to the presence of metallic particles, a chemical factor which varies according to the nature of the oils used (mineral oils, coal oils or vegetable oils), an infectious factor and finally a human factor. He thinks that oily chemical disinfection of the oils by some nonirritating agent can give complete satisfaction.

Biopsy of Gastric Mucosa Under Gastroscopic Control

At the Belgian Society of Gastroenterology, Carmena D'Almeida of Paris demonstrated that a flexible biopsy forceps can be introduced simultaneously with a gastroscope that has an improved optic attachment, the entire apparatus being enclosed in a thin rubber cover The forceps is guided by silk thread traction under visual control. Specimens obtained will permit distinction between certain benign and cancerous tumors; and this will be a guide for more adequate therapy: It will be interesting to know the histologic aspect of the antral mucosa in pernicious and other anemias; in benzene gastritis and in the gastritis of arc welders:

Vision and Tobacco

Before the Society of Legal Medicine of Belgium, Hambresine and Schepens pointed out that amblyopias due to tobacco were frequent in Belgium during the war and that in the invaded and besieged regions one still finds smokers with diminished vision. Various authors think that the lesion in question is due to an intoxication due to both alcohol and tobacco. The only absolute diagnostic element is a peripheral scotoma which can be easily seen by means of the screen of Bjerrum. This scotoma characteristically presents one or two or even more extremely dense zones. The constituent of tobacco that provokes this visual disturbance is not known. The treatment is simple. It is sufficient to abstain from tobacco, but often improvement is not evident until the patient has abstained from tobacco for several weeks.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in The Journal, March 13, page 796

BOARDS OF MEDICAL EXAMINERS

ARIZONA:* Examination. Phoenix, April 6-7. Endorsement. Phoenix, April 10. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

Arkansas:* *Examination.* Little Rock, June 3-4. Sec., Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana. *Eclectic:* Little Rock, June 3. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Oral.* San Francisco, June 5-6; Los Angeles, Aug. 7-8. *Written Examination.* Los Angeles, Aug. 9-12. *Oral and Clinical Examination for Foreign Graduates.* San Francisco, June 6. Sec., Dr. Frederick N. Scatena, 1020 N Street, Sacramento 14.

Colorado:* *Examination.* Denver, June 21-23. Final date for filing application is June 5. *Endorsement.* Denver, April 6. Final date for filing application is March 20. Sec., Dr. J. B. Davis, 831 Republic Bldg., Denver.

Connecticut:* *Examination.* March 9-10. Sec., Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic Examination:* Derby, March 9-10. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

Delaware: *Examination.* Dover, July 13. *Endorsement.* Dover, July 22. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

HAWAII: Examination. Honolulu, July 12-15. Sec., Dr. S. Doolittle, 881 S. Hotel St., Honolulu.

Idaho: Boise, July 13-15. Sec., Bureau of Occupational Licenses, Miss Estella S. Mulliner, 355 State House, Boise.

Illinois: Chicago, April 6-8. Supt., Dept. of Registration and Education, Mr. Fred W. Ruegg, Springfield.

Indiana: *Examination.* Indianapolis, June 1948. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, K of P Bldg., Indianapolis.

Kansas: Kansas City, June 9-10. Sec., Board of Medical Registration & Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

Kentucky: *Examination.* Louisville, June 16-18. Sec., Dr. P. E. Blackerby, 620 S. 3d St., Louisville.

Maryland: *Medical Examination.* Baltimore, June 15-18. Sec.-Treas., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic Examination.* Baltimore, June 15-16. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MINNESOTA:* Minneapolis, April 20-22. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul.

Mississippi: Jackson, June 1948. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

Missouri: *Examination.* St. Louis, May 24-26. Final date for filing application is April 24. Exec. Sec., Mr. John A. Hailey, State Capitol Bldg., Jefferson City.

Montana: Helena, April 5-7. Sec., Dr. O. G. Klein, First Nat'l Bank Bldg., Helena.

Nebraska:* *Examination.* Omaha, April 5-7. Dir., Mr. Oscar F. Humble, Room 1009 State Capitol Bldg., Lincoln 9.

Nevada: Carson City, May 3. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

New Jersey: *Examination.* Trenton, June 15-17. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

North Carolina: *Endorsement.* Pinehurst, May 4. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

North Dakota: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

Ohio: *Endorsement.* Columbus, April 6. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

Oklahoma:* Oklahoma City, June 2-3. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon:* *Endorsement.* Portland, May 7-8. Final date for filing application is April 23. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland.

Pennsylvania: *Examination.* Philadelphia & Pittsburgh, July. Act. Sec., Bureau of Professional Licensing, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

Rhode Island:* *Examination.* Providence, April 1-2. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Written Examination.* Columbia, June 21-23. *Endorsement.* April 5. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA:* Pierre, July 20-21 * Sec., Dr. Gilbert Cottam, Capitol Bldg., Pierre.

Tennessee:* *Examination.* Memphis, March 24-25. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

Utah: *Examination.* Salt Lake City, June, 1948. Asst. Dir., Department of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

Virginia: *Examination.* Richmond, June 18-19. *Endorsement.* Richmond, June 17. Sec., Dr. K. D. Graves, 306 Medical Arts Bldg., Roanoke.

West Virginia: Charleston, April 5-7. Comm., Public Health Council, Dr. N. H. Dyer, State Capitol Bldg., Charleston.

Wisconsin:* Milwaukee, June 29-July 1. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

Wyoming: *Examination.* Cheyenne, June 7. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arkansas: Little Rock, May 4. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

District of Columbia: *Examination.* Washington, April 19-20. Sec., Dr. G. C. Ruhland, 4130 Municipal Bldg., Washington.

Florida: *Examination.* June 5. Final date for filing application is May 23. Sec., Mr. M. W. Emmel, Univ. of Florida, Gainesville.

Iowa: Des Moines, April 13, July 13, Oct. 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination.* Ann Arbor and Detroit, May 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

Minnesota: *Examination.* Minneapolis, April 6-7. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

Nebraska: *Examination.* Omaha, May 4-5. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, Room 1009 State Capitol Bldg., Lincoln 9.

New Mexico: *Examination.* Santa Fe, March 21. Sec., Miss Marguerite Kilkenny, 114 E. Marcy, Santa Fe.

Oklahoma: Oklahoma City, April 2. Sec., Dr. Frank Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: *Examination.* Portland, June 19. Sec., Basic Science Examining Committee, Mr. C. D. Byrne, Univ. of Oregon, Eugene.

South Dakota: *Examination.* Vermillion, June 4-5. Sec., Dr. G. M. Evans, 310 E. 15th St., Yankton.

Wisconsin: *Examination.* Madison, April 3. Sec., Dr. W. H. Barber, Scott & Watson Sts., Ripon.

Medical Motion Pictures

FILM REVIEW

RETURN TO ACTION. 16 mm., black and white, sound 725 feet (1) reel, showing time nineteen minutes. Produced in 1946 for the British Ministry of Labour, London, England. Procurable on loan from British Information Service, 30 Rockefeller Plaza, New York 20 or Local Office.

This excellent film on vocational rehabilitation describes the extremely well-organized program which has been developed in England for the vocational rehabilmtation of disabled persons. The work at the Vocational Rehabilitation Center at Egham is shown; here successive groups of disabled men are trained vocationally to assume again their places in civilian life. The script centers around the progressive rehabilitation of a man whose lower extremity was amputated and who proceeds from the stage of despair because of his disablement through successive stages to reemployment. First he goes to Egham for vocational rehabilitation, then to the government training center at Stowe and finally to the Devon residential training center. At last he is placed in a suitable posintion in industry and happily reemployed.

The filming is of good quality, the narration is excellent and the picture will interest anyone primarily concerned with rehabilitation of the seriously disabled. While there is little of a medical nature in this film physicians should see it because it indicates clearly how modern methods of industrial and vocational rehabilitation can restore even seriously handicapped persons. This Film could well be used as a supplement to the several excel-

lent films on physical rehabilitation which have been pre•

lent films on physical rehabilitation which have been prepared recently.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American Journal of Medical Sciences, Philadelphia

214:465-584 (Nov.) 1947

Relapse of Patients with Pernicious Anemia Receiving Folic Acid. O. C. Hansen-Pruss.—p. 465.

Diagnostic Value of Sternal Bone Marrow Puncture in Polycythemia Vera. I. H. Manning Jr.—p. 469.

*Anemia and Its Relation to Diaphragmatic Hernia. J. O. Ritchey and H. J. Winsauer.—p. 476.

*Prolonged Incubation Period as Epidemiologic Principle of Infectious Hepatitis and Homologous Serum Jaundice. W. L. Aycock and W. F. Oren.—p. 483.

*Caronamide, Compound That Inhibits Penicillin Excretion by Renal Tubules, Applied to Treatment of Subacute Bacterial Endocarditis W. P. Boger, C. F. Kay, S. H. Eisman and E. E. Yeoman.—p. 493.

Convulsive State in Diabetes. M. Ellenberg and H. Pollack.—p. 503.

Urinary Excretion of Amino Acids by Cystinuric Subject. H. L. Yeh, W. Frankl, M. S. Dunn and others.—p. 507.

Examination of Hypertensive Patient. M. Backer.—p. 513.

Infarction of Entire Pulmonary Lobe with Subsequent Aseptic Softening Causing Sterile Hemopneumothorax. A. J. Rawson and J. A. Cooke. —p. 520.

Significance of Clinical Findings in Cirrhosis of Liver: Study of 93 Autopsied Cases. J. Hoffman and J. R. Lisa.—p. 525.

Interference Between Inactive and Active Viruses of Influenza: V. Effect of Irradiated Virus on Host Cells. W. Henle, Gertrude Henle and Maria W. Kirber.—p. 529.

Cold Hemagglutinins in Sickle Cell Anemia. J. E. J. McSweeney, A. C. Mermann and P. F. Wagley.—p. 542.

*Propylthiouracil in Treatment of Hyperthyroidism. E. P. McCullagh, R. E. Hibbs and R. W. Schneider.—p. 545.

Use of Pyribenzamine in Prevention of Histamine-Induced Gastric Acidity and Headache and in Treatment of Hypersensitiveness to Cold. E. L. Perry and B. T. Horton.—p. 553.

Application of Immunologic Principles to Management of Hay Fever, Including Preliminary Report on Use of Freund's Adjuvant. Mary H. Loveless.—p. 559.

Rheumatoid Spondylitis. D. G. Pugh.—p. 568.

Anemia and Diaphragmatic Hernia.—Ritchey and Winsauer review 41 cases of diaphragmatic hernia, the records of which were found either in the medical records of the Indiana University Medical Center or in the files of the roentgenologic department. There were 27 females and 14 males, which is in accord with the accepted predominance of females over males. Thirty of the cases showed herniation of the stomach alone, the other 11 cases involving herniation of the stomach plus other abdominal viscera. The authors detected a secondary anemia in 11 of the 41 cases. This incidence of anemia is not as high as in some reported series, but is higher than in a number of other series. It tends to substantiate the fact that anemia in diaphragmatic hernia is often found as part of the disease and that it does not have to be associated with a history of gastrointestinal bleeding.

Prolonged Incubation: Infectious Hepatitis and Homologous Serum Jaundice.—Aycock and Oren show that in neutralization and protection tests in a number of virus infections having different incubation periods a portion of the animals inoculated with mixtures of virus and immune serum develop the disease following incubation periods that are longer than those resulting from inoculation with virus and nonimmune serum. Prolongation is proportionate to the length of the incubation periods of each of the several diseases. The degree of prolongation of the incubation period of homologous serum jaundice over that of infectious hepatitis is equivalent to that observed in other neutralization or protection tests. In the light of this epidemiologic principle it is suggested that the difference in the incubation periods of infectious hepatitis and homologous serum jaundice is due to differences in the manner of transmission of a single virus which involve admixture of virus with antibodies. The shorter incubation period, generally regarded as characteristic of infectious hepatitis, occurs when transmission of either of the two types of jaundice is accomplished by intranasal or oral administration or by contact (serum-free virus). The longer incubation period, regarded as characteristic of homologous serum jaundice, follows the transmission of either of the types of jaundice by the injection of serum containing virus. It is postulated that the prolongation of the incubation period of homologous serum jaundice over that of infectious hepatitis is the result of partial neutralization of the virus by admixture with serum containing antibodies of either the donor or recipient patient or by the in vitro action of serum that contains antibodies on the virus

Caronamide and Penicillin in Bacterial Endocarditis.—Boger and his co-workers found in preliminary clinical investigations that penicillin plasma concentrations were enhanced threefold to sevenfold by the oral administration of caronamide, and no serious toxic manifestations were observed. They treated a woman aged 51 with subacute bacterial endocarditis due to a strain of streptococcus resistant to penicillin and streptomycin by the intramuscular administration of penicillin and the oral administration of caronamide. In this patient, as in a control in whom the two substances were administered simultaneously, there was good correlation between the concentration of caronamide in plasma and the enhancing effect on concentrations of penicillin in plasma. The authors stress that even when the dosage employed is measured in millions of units per day, the plasma levels of penicillin can be elevated by the administration of caronamide. The effect of caronamide in the treatment of this patient was equivalent to the injection of additional millions of units of penicillin.

Propylthiouracil in Hyperthyroidism.—The use of propylthiouracil over a fourteen month period convinced McCullagh and his associates that the drug is decidedly superior to thiouracil in the treatment of hyperthyroidism. In 218 patients treated for an average of eight months and in some treated as long as fourteen months no cases of agranulocytosis were seen. Three minor reactions occurred, and four other reactions required the cessation of treatment. The drug is effective in the control of hyperthyroidism of all types except possible instances of acute crisis, in which its action is too slow. The hyperthyroidism of acromegaly may also be an exception. An effective dose in more than 95 per cent of patients has been 300 mg. per day. A smaller dose is effective in many cases; a larger dose has been required in less than 4 per cent. Iodine in doses as high as 30 mg. per day may be used concurrently with propylthiouracil. It will eliminate the thrill and bruit in diffuse glands and does not hinder the action of propylthiouracil.

American Journal of Surgery, New York

74:795-904 (Dec.) 1947. Partial Index

Perforating Wound of Pericardium. S. Z. Hawkes.—p. 797.

Demonstration at Operation of Sphincteric Action at True Gastric Stoma. C. S. Kennedy, R. P. Reynolds and M. O. Cantor.—p. 808.

Nontraumatic Perforation of Common Bile Duct. H. M. Gans and M. Reydman.—p. 811.

Congenital Megacolon Hirschsprung's Disease: Megacolon Treated by Segmental Resection. J. Hersh.—p. 815.

Foreign Body Perforation of Sigmoid Simulating Carcinoma. A. Meltzer and D. B. Hackel.—p. 824.

Endometriosis of Umbilicus. B. J. Weisband and C. Modica.—p. 827.

Plastic Reconstruction Following Third Degree Burn of Forearm. N. Brodie.—p. 834.

Reconstruction of Face and All Four Eyelids. O. S. Steinreich and A. Callahan.—p. 838.

Unusual Metastatic Manifestations of Breast Carcinoma: Cutaneous Hemorrhagic Metastasis. J. B. Herrmann and F. E. Adair.—p. 844.

Spontaneous Amputation of Fallopian Tube. F. M. Flickinger and J. C. Masson.—p. 850.

Cesarean Section Seven Years After Hemihysterectomy in a Bicornate Uterus. W. P. Smith.—p. 856.

Hyperparathyroidism and Pregnancy. D. W. Petit and R. L. Clark. —p. 860.

Intra-Abdominal Hemorrhage During Pregnancy. A. F. Lee.—p. 867.

Placenta Accreta. L. Rademaker, I. R. Hansen and R. La Rue.—p. 869.

Primary Ovarian Pregnancy of Four Months. P. D. Badia.—p. 874.

Replacement of Upper End of Femur with Fibular Graft. R. D. McClure and C. R. Lam.—p. 882.

Heredofamilial Cleft Foot Deformity: (Lobster-Claw Foot or Split Foot). H. W. Meyerding and J. E. Upshaw.—p. 889.

Danger Signal in Traumatic Anterior Dislocation of Hip. C. F. Goeringer.—p. 893

Simultaneous Occurrence of Multiple Primary Carcinomas Within Abdominal Cavity. K. B. Hanson and J. T. Crone.—p. 895.

American Journal of Tropical Medicine, Baltimore

27:663-798 (Nov.) 1947. Partial Index

- *"Mal Del Pinto" or "Carate" and its Treatment with Chlorhydrate of 3-Amino 4 Oxiarsenbenzen (Mapharsen). G. Varela and C. Avila. —p. 663.
- Factors That Influence Degree of Parasitemia in Ducks Infected with Plasmodium Lophurae. R. H. Rigdon and B. E. McCain —p. 673.
- *Plague: Survey of Recent Development in Prevention and Treatment of Disease. J. M. Ruegsegger and H. Gilchrist.—p. 683.
- Method for Testing Ointments and Fabrics to Determine Their Effectiveness as Barriers to Schistosome Cercariae. R. E. Kuntz, M. A. Stirewalt and J. R. Buchheit.—p. 691.
- Visceral Leishmaniasis Complicated by Severe Anemia—Improvement Following Splenectomy. J. H. Burchenal, R. F. Bowers and T. A. Haedicke.—p. 699.
- Aedes Aegypti Control in Absence of Piped Potable Water Supply. P. F. De Caires.—p. 733.
- Asymptomatic Toxoplasmosis. B. H. Kean and R. G. Grocott.—p 745.

"Mal del Pinto;" Treatment by "Mapharsen.—Varela and Avila say that according to a 1934 census there were 270,049 persons with pinta, mal del pinto, or carate in Mexico. They estimate that in the rest of the Western Hemisphere, chiefly Colombia and Venezuela, there are approximately 500,000 persons infected with this disease. In 1938 a treponeme which has been designated as Treponema carateum, or Treponema herrejoni, was discovered in the lesions and lymph nodes of patients with pinta. The authors were able to grow T. carateum in anaerobic mediums, or on the chorioallantoic membrane, or in the yolk of fertilized eggs. The authors studied 805 patients with regard to the history of pinta in their parents. They found a somewhat higher incidence of pinta in persons whose parents had the disease than in those whose parents were free from it. Pinta usually begins with spots of desquamating erythema chiefly on the uncovered parts of the body. Later dyschromic lesions appear, which may be red, pink, blue and white. The red and blue lesions are distributed all over the body, whereas the white spots are mainly found on shoulders, elbows, hand, knees and feet. In nearly half of the patients pruritus exists during the dyschromic stage. Wassermann and Kahn reactions are frequently positive. The authors used oxophenarsine hydrochloride ("mapharsen") for treatment, administering 0.04 Gm. twice a week. The total number of injections was usually fifteen, although some were given only five. Several hundred patients were treated, but only 66 were observed for periods as long as a year. In 6 the lesions were not changed in aspect, and in the others only part of the hyperchromic spots disappeared.

Plague.—Ruegsegger and Gilchrist believe that an antiplague program should include (*a*) quarantine and isolation, (*b*) control of rodent populations, (*c*) emphasis on pulicidal measures, and (*d*) prophylaxis of the individual contacts. Effective therapeutic agents are now available. Serums have been developed, but the objection to all serums, expense and necessity for parenteral administration, applies to antiplague serum and may conceivably be its limiting factor. The sulfonamide drugs, particularly sulfadiazine, constitute the most effective therapeutic agents in plague. Suggestive confirmation of the curative effect of the sulfonamide compounds in human infections is accumulating. Streptomycin has been shown by Wayson and McMahon to be effective in curing plague in guinea pigs. The human clinical application awaits confirmation. Chu in discussing the current situation with regard to plague in China reported a unique incident which suggests a more hopeful prognosis for victims of pulmonic plague. A physician contracted pneumonitic plague while engaged in transferring virulent cultures in the laboratory. Sulfadiazine therapy was instituted in full doses on the second day of symptoms after the diagnosis had been confirmed culturally. On the fourth day and for several days thereafter streptomycin was also administered. The patient made an uneventful and complete recovery.

Illinois Medical Journal, Chicago

92:313-362 (Dec.) 1947

- Surgical Treatment for Carcinoma of Esophagus. P. Thorek.—p. 329.
- Early Ambulation in Surgical Patient. A. M. Vaughn, A. C. Guzauskas and F. A. Lagorio Jr.—p. 337.
- Mental Aspects of Growth and Health. B. I. Beverly.—p. 341.
- Diagnosis of Pulmonary Tuberculosis. G. H. Vernon.—p. 344.
- Observations on Fracture Treatment. H. A. Sofield.—p. 346.
- Indications for Lumbar Sympathectomy. G. De Takats.—p. 349.
- Ambulatory Electric Shock Therapy in an Out-Patient Clinic. H. R. Johnson.—p. 351.

Indiana State Medical Assn. Journal, Indianapolis

40:1204-1330 (Dec.) 1947

- Paradox of Psychoneurotic Malingering. A. R. MacLean.—p. 1223.
- Correction of Chronic Sinusitis. J. J. Littell.—p. 1226
- Acute Ischemic Necrosis of Anterior Compartment Muscles of Leg. R. A. Royster.—p. 1229.
- *Penicillin in Infectious Syphilis. H. L. Joseph, G. F. Kempf and G. W. Bowman.—p. 1232.
- Stress Versus Predisposition in Combat Psychiatry. W. L. Sharp. —p. 1234.

Penicillin in Infectious Syphilis.—Joseph and his associates review observations on 263 patients with syphilis who were treated with penicillin in four different dosage schedules. There were 168 patients who received 2,400,000 Oxford units of sodium penicillin in aqueous solution, 20,000 units every three hours for fifteen days; 38 received 4,800,000 units, 40,000 units every three hours for fifteen days; and 47 had 9,600,000 units, 80,000 units every three hours for fifteen days. The fourth group, comprising 10 patients, received 9,600,000 units of calcium penicillin in peanut oil and beeswax, given by a single daily intramuscular injection of 600,000 units for sixteen consecutive days. Patients were followed clinically and serologically from one to eighteen months after treatment. The study is presented to indicate a trend that higher dosages are probably advisable. It is also suggested that the general practitioner use penicillin as an adjunct to regular arsenical and bismuth therapy, rather than alone.

Journal of Urology, Baltimore

58:397-484 (Dec.) 1947

- *Wilms's Tumor in the Adult: Review of Literature and Report of 3 Additional Cases. G. L. Esersky, S. H. Saffer, C. E. Panoff and M. Jacobi.—p. 397.
- Wilms's Tumor: Report of Three Year Cure. C. M. Burgess.—p. 412.
- Hemangioma of Kidney: Report of 2 Cases. J. B. Lownes, S. Baron and H. Lipshutz.—p. 417.
- Renal Varix. A. Sporer and R. Pollock.—p. 424.
- Ureterovaginal Fistula: Repair of Ureteral Defect by Use of Bladder Flap. G. V. Caughlan.—p. 428.
- Intraperitoneal Rupture of Urinary Bladder in Female: Report of Case. C. D. Tool.—p. 431.
- Hysterectomy and Total Cystectomy with Bilateral Ureterocutaneous Implantation for Carcinoma of Bladder. Secondary Ureterosigmoidal Anastomosis for Complicating Ureterovaginal Fistula. D. A. Dreiling and A. Hyman.—p. 435.
- Giant Bladder Calculus Associated with Upper Urinary Tract Lithiasis: Case Report. L. A. Maslow and J. Garnello.—p. 441.
- Racial Incidence of Prostatism in Hawaii: Report of 172 Consecutive Cases. K. B. Conger.—p. 444.
- Microscopic Diagnosis of Prostatic Tissue Obtained by Transurethral Resection: Analysis of 1,696 Cases. R. L. Satterlee.—p. 448.
- Traumatic Rupture of Testicle. F. L. Senger, J. J. Bottone and W. F. Ittner.—p. 451.
- Extensive Lymphangioma of Scrotum, Penis and Adjacent Areas: Report of Case. D. O. Ferris and C. L. Holmes.—p. 453.
- Multiple Calcified Cysts of Scrotum: Case Report. H. V. Morley and J. W. Best.—p. 458.
- Abdominal Wall Abscess Secondary to Perianal Abscess. H. J. Meisel, C. S. Gallion and J. M. Miller.—p. 461.
- *New and Rapid Method for Control of Urinary Tuberculosis: Preliminary Report. G. E. Slotkin.—p. 464.

Wilms's Tumor.—According to Esersky and his associates increasing reports on Wilms's tumors in adults indicate that they are not as rare as has been presumed. Fifty-three cases have been reported previously, and to this number the authors add 3 cases of their own. The first patient, a man aged 47, died before the true nature of the disease had been recognized. Necropsy revealed an embryonal sarcoma (Wilms's tumor) of the right kidney with metastases to the liver, lungs and vertebrae, coronary thrombosis, bronchopneumonia and other disorders. The second case concerned a woman, aged 33, who was subjected to surgical treatment with the diagnosis of degenerating renal neoplasm. A nephrectomy was done on the left side. Examination of the surgical specimen established the diagnosis of malignant teratoma of the kidney (Wilms's tumor) with direct intrapelvic, extrarenal and intravascular invasion. The patient died two months after the operation. The third patient, a woman aged 24, was subjected to nephrectomy. An embryonal adenocarcinosarcoma of the kidney (Wilms's tumor) was found. The patient was given postoperative roentgen therapy and was still alive three years after the operation. The prognosis is unfavorable in this type of tumor. A patient with an unusually large renal mass and a high elevation in temperature, without evidence of urinary infection, should cause one to be suspicious of the possibility of Wilms's tumor

Control of Urinary Tuberculosis.—The study described by Slotkin was undertaken to determine whether there existed a more rapid and permanent control of inoperable or bilateral renal tuberculosis than the present therapeutic methods offered. With the advent of streptomycin such a control seemed to be available. Tubercle bacilli have a tendency to develop resistance against streptomycin. Mycobacterium tuberculosis has a protecting waxy cell wall. The same condition exists in Mycobacterium leprae. Long before the advent of antibiotics the author had conceived the idea that if a substance could be found to dissolve the protecting waxy wall, the process involved in inhibiting the growth might be enhanced. Knowing the existence of the same process in M. leprae, the oil of chaulmoogra and its derivative esters were experimented with in a few cases. After describing in vitro and animal studies on the effect of chaulmoogra oil on the sensitivity of Mycobacterium phlei to streptomycin, the author describes clinical observations on 6 active cases of inoperable and bilateral renal tuberculosis with secondary vesical symptoms. In the first 3 cases treatment was with the regular oil of chaulmoogra; later "moogrol," a more refined oil (a mixture of the ethyl esters of the fatty acids of the chaulmoogra series of oils) which is painless, more readily absorbable and nonirritating, was used. Each patient received 1 cc. of the oil intramuscularly daily for three days, then the dosage was increased to 2 cc. for four days. On the seventh day, the patient received 1 cc. of the oil and 1 Gm. of streptomycin. The treatment period lasted thirty days. The antibiotic is added to 16 cc. distilled water or sodium chloride solution and administered in eight doses of 2 cc. each, every three hours. All patients were hospitalized but ambulatory. The clinical results of this "softening and conditioning process" warrant further investigation, not only in the urologic tract but in all types of tuberculosis.

Michigan State Medical Society Journal, Lansing

46:1353-1478 (Dec.) 1947

Possible Infant Salvage at Florence Crittenton Hospital. S. W. Trythall.—p. 1385.
Rational Use of Diuretics in Congestive Heart Failure. E. H. Drake.—p. 1389.
Michigan Wants Excellent Nursing—Two Kinds. Grace Ross.—p. 1395.
*Parathyroid Extract and Diuresis. R. C. Moehlig and H. L. Abbott.—p. 1397.
Control of Blood Loss During Delivery. D. M. Shook.—p. 1402.
Treatment of Common Respiratory Infections. H. V. Dwyer.—p. 1407.

Parathyroid Extract and Diuresis.—Moehlig and Abbott direct attention to the diuretic effect of parathyroid extract, which has been known for some time. They present 2 case histories which illustrate the favorable effect of parathyroid extract. First, in a man aged 54 oliguria developed following treatment with sulfadiazine and sodium bicarbonate. The patient began to pass increasing quantities of urine on the second day of treatment with parathyroid extract. The patient was given 2 cc. (200 units) of this extract by intramuscular injection on four successive days. On the fifth and sixth days he was given 1 cc. and 0.5 cc., respectively. After that, the drug was discontinued because of the striking improvement. Second, a woman aged 36 was hospitalized with generalized urticaria, edema and sporadic convulsions, attributed to the ingestion orally of four tablets (25,000 units each) of penicillin. Treatment with diphenhydramine ("benadryl") caused exacerbation of the symptoms, particularly the edema. Diuresis finally began, and the edema subsided after the second injection of 2 cc. of parathyroid extract. The authors stress that the diuretic effect is directly proportional to the degree that calcium is mobilized in the blood.

Pennsylvania Medical Journal, Harrisburg

51:241-384 (Dec.) 1947

Future Status of General Practitioner. W. M. Johnson.—p. 265.
Penicillin Treatment of Sinus Infection. F. W. Davison.—p. 272.
Brucellosis. W. J. Fetter and G. E. Crum.—p. 276.
*Factors Influencing Immediate Survival Following Coronary Thrombosis with Myocardial Infarction. J. B. Tredway.—p. 280.
Infectious Diarrhea of Newborn: Report of an Epidemic. J. A. Ritter, Rose R. O'Connell and E. Lucente.—p. 285.
Preventive Medicine in Hospital Practice. T. McC. Mahon.—p. 290.

Factors Influencing Survival in Coronary Thrombosis.—Tredway studied cases of acute myocardial infarction in order to ascertain what prognostic guides may give information as to the immediate outcome of the attack. The data were obtained *only from* cases of classic myocardial infarction, the diagnosis being based either on clinical criteria and unequivocal electrocardiographic evidence or on observations at necropsy. The series consists of 54 patients, of whom 21 died and 33 survived the acute attack. On the basis of his survey Tredway regards the following manifestations presented by a patient with acute myocardial infarction to be of bad prognostic import as far as survival in that attack is concerned: a past history of diabetes; previous infarction; congestive failure or vascular disease other than hypertension; epigastric pain; dyspnea; tachycardia; a pulse pressure of 20 mm. of mercury or less; evidences of shock; manifestations of congestive failure; irregularities of rhythm, particularly auricular fibrillation; either an elevated blood urea nitrogen level or blood sugar determination in the absence of renal disease or diabetes; a prolonged auriculoventricular conduction time.

Psychosomatic Medicine, Baltimore

9:353-408 (Nov.-Dec.) 1947

Role of Somatic Trigger Areas in Patterns of Hysteria. Janet Travell and N. H. Bigelow.—p. 353.
Rorschach Tension Score and Diurnal Lymphocyte Curve in Psychotic Subjects. L. Phillips and F. Elmadjian.—p. 364.
Psychosomatic Considerations in Peptic Ulcer. M. D. Zane.—p. 372.
**Relation of Group Morale to Incidence and Duration of Medical Incapacity in Industry. K. Brodman and L. P. Hellman.—p. 381.*

Group Morale and Duration of Medical Incapacity in Industry.—The investigation of Brodman and Hellman was carried out on 600 employees of a mail order firm in New York. The relation between group influences and the duration of medical incapacity was investigated, using medical absenteeism as the measure of medical incapacity. No correlation was found between absence for long illnesses and lateness. However, in each quarter those departments in which employees were frequently absent for short illnesses were also those in which employees were frequently late. Since the frequent occurrence of lateness is a concomitant of poor morale, it appears that those departments in which employees are frequently absent for short illnesses are those in which the morale is poor. Medical incapacity is thus related to group morale. The data indicate that different work groups have dissimilar morale, that a person's work morale is decidedly influenced by the group in which he works and that group morale is intimately related to the occurrence and duration of short medical incapacities.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

23:3-180 (Sept.) 1947

Studies on Genus Shigella. L. M. González, P. Morales Otero and J. Enrique Pérez.—p. 3.
*Nutritional Status of Puerto Rican Rural Community in Relation to Its Dietary Intake. Una Robinson and R. M. Suárez.—p. 100.

Nutritional Status in Rural Puerto Rico.—The report by Robinson and Suárez deals with a survey of the nutritional status and dietary intake of a population sample in a rural community of Puerto Rico. Its purpose was twofold: (1) to determine the dietary intake and its adequacy and (2) to study the correlation of said intake with the nutritional status. The dietary studies showed that the diets were conspicuously low in calcium, vitamin A and riboflavin and that all other dietary essentials failed to measure up to the recommendations of either the National Research Council or to a more conservative standard elaborated for Puerto Ricans. These diets were conspicuously low in milk and yellow and green vegetables. Physical examinations revealed many signs of nutritional deficiencies. Sixty-one per cent of the subjects were more than 5 per cent underweight; 73 per cent had dental caries or had lost some teeth; 79 per cent had slight or moderate signs of vitamin A deficiency; 95 per cent, of riboflavin deficiency; 28 per cent, of nicotinic acid deficiency, and 48 per cent, of ascorbic acid deficiency.

Virginia Medical Monthly, Richmond

74:543-595 (Dec.) 1947

Medical Progress During Past Century. R. H. Shryock.—p. 543.
Eighteen Hundred and Twenty: The Virginia Doctor and His Times. W. B. Blanton.—p. 547.
Acute Peripheral Arterial Embolism and Thrombosis. E. L. Lowenberg.—p. 551.
Treatment of Severe Compound Fractures of Foot. R. D. Butterworth.—p. 560.
Cooperation Between Oculists and General Practitioners. F. P. Smart.—p. 564.
Medical Public Relations. H. S. Johnson.—p. 567.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Lancet, London

2:857-896 (Dec. 13) 1947

*Absorption of Penicillin Given by Mouth. H. C. Stewart and J. R. May.—p. 857.
Speech After Repair of Cleft Palate. F. H. Bentley and I. Watkins.—p. 862.
Trilene Analgesia: Simple Apparatus for Self-Administration. J. T. Hayward-Butt.—p. 865.
Holt's Diphtheria Toxoid (P.T.A.P.) Al PO_4 Content, Purity, Ageing, and Durability of Immunity. G. Bousfield.—p. 867.
Antistin In Treatment of Allergic Diseases. C. J. C. Britton.—p. 870.

Absorption of Penicillin Given by Mouth.—Stewart and May have tried to determine the relative importance of the factors governing the absorption of penicillin given by mouth, but made no attempt to treat actual infections; all the results were obtained in normal healthy adults. They found that in order to insure the best possible absorption, penicillin by mouth should be given on an empty stomach. The use of capsules gave results inferior to those obtained with the same dose in aqueous solution. The destructive effect of gastric acidity is only of importance when the p_H is less than 3. Most of the penicillin is absorbed in the upper part of the small intestine. Destruction of penicillin by penicillinase in the upper part of the digestive tract is negligible. Dextrose is a convenient source of energy which can be given with penicillin and often enhances the result. The most important factor influencing the absorption of penicillin seems to be the unexplained individual variations in the absorptive capacity of the intestine. The penicillin should be given in about 4 ounces (118 cc.) of a 5 to 10 per cent solution of dextrose, containing about 20 grains (1.29 Gm.) of sodium bicarbonate or citrate, before meals, and not less than three hours, preferably four hours, after the previous meal. The dose should be ten times as great as the dose of intramuscular penicillin that produces the blood penicillin levels required.

Medical Journal of Australia, Sydney

2:589-616 (Nov. 15) 1947

Anesthesia in Labor and Cesarean Section. C. N. Paton.—p. 589.
Local Anesthesia in Obstetrics. R. Mackey.—p. 593.

2:617-648 (Nov. 22) 1947

*Preliminary Report on Fish Poisoning at Fanning Island (Central Pacific). S. G. Ross.—p. 617.
Anticonvulsant Properties of Creatinine. J. F. Cade.—p. 621.
New Formation of Smooth Muscle in Lung. K. M. Bowden.—p. 623.

Fish Poisoning at Fanning Island.—Ross says that between February 1946 and April 1947 fish poisoning occurred in 95 persons in a population of 224 persons on Fanning Island in the central Pacific area. The symptoms of this poisoning are slow pulse, contracted pupils, numbness and sensation of tingling over the whole body, especially around the lips and at the fingertips. Gastrointestinal symptoms (epigastric pain, diarrhea and vomiting) are present in 75 per cent of cases. The symptoms are becoming more and more severe and nervous features more prominent. The recovery is extremely gradual, and weakness persists for several weeks. Cats, dogs and domestic ducks that are fed poisonous fish experimentally or accidentally develop ascending paralysis in eight to twelve hours, the paralysis lasting from three to five days. Ten different species of fish have already been classified as poisonous at Fanning. Prior to 1946 these fish were eaten without any ill effect. The areas in which the poisonous fish are caught correspond with places where the American army dumped war materials in July 1945. It is suspected that the plankton and algae as well as crustaceans and seaworms on which fish feed contain a poisonous principle emanating from deteriorating dumped war material. The effect of the poisonous agent at Fanning is similar to that of the poison isolated from sea plankton around San Francisco, where this agent was responsible for many cases of shellfish poisoning and was found to belong to the class of alkaloids.

Proceedings of Royal Society of Medicine, London

40:761-848 (Nov.) 1947. Partial Index

Transmeatal Attico-Antrotomy in Chronic Tympanomastoid Suppuration. A. Tumarkin.—p. 761.
Some Experiences with Bone Tumors. J. F. Brailsford.—p. 787.
Injuries to Bladder. R. A. Mogg.—p. 795.
Injuries of Urethra. D. S. Poole-Wilson.—p. 798.

Nordisk Medicin, Gothenburg

36:2079-2126 (Oct. 17) 1947. Partial Index

Hospitalstidende

Experiences in Intraspinal Administration of Penicillin in Treatment of Purulent Meningitis. O. Bentzen and H. Jørgensén.—p. 2085.

Norsk Magasin for Lægevidenskapen

*Primary Atypical Pneumonia. B. Knutsen.—p. 2099.
Peritoneal Irrigation in Anuria. B. Fretheim and O. Selvaag.—p. 2106

Primary Atypical Pneumonia.—Knutsen says that since Feb. 1, 1946, 86 certain cases and 24 probable cases of primary atypical pneumonia were seen at Drammen Hospital. In the course of a year the disease constituted over 37 per cent of the cases of pneumonia treated in the hospital. Most of the cases appeared as an epidemic in the fall of 1946. The disease was benign, with few complications but with protracted course. In the severest cases the cold agglutination titer continued high for weeks; in the mildest cases the titer fell rapidly. Penicillin or sulfonamide drugs were of no value except in a few cases with signs of bacterial complication. In 3 cases there was an erythema multiforme exsudativum, regarded as a complication of the primary atypical pneumonia, perhaps by activation of a virus. In 3 of the 4 samples of convalescent serum sent to him Eaton demonstrated neutralizing antibodies against the Eaton virus, indicating either present or past infection.

Presse Médicale, Paris

55:845-856 (Dec. 20) 1947. Partial Index

*Local Injections of Penicillin in Treatment of Adnexa. M. Roux and P. Monod-Broca.—p. 845.
*Role of Sewage Water as Disseminator of Virus of Poliomyelitis. C. Kling.—p. 848.

Penicillin in Treatment of Adnexa.—Roux and Monod-Broca treated 19 women who had salpingo-ovaritis with local injections of penicillin made at the level of the vaginal cul-de-sac. Eleven of the patients had an acute salpingitis characterized by a plastic reaction with bilateral painful soft swelling, mild rise of temperature and moderate leukocytosis. In 9 of these cases favorable results were obtained with five to six injections of 25,000 units of penicillin which were repeated every second day; complete recovery occurred in 6 patients, while the 3 remaining patients presented a small residual mass which subsided after three injections of "propidon" (Delbet's vaccine). Two patients with periuterine postpartum infection were therapeutic failures. Local treatment did not succeed in 2 additional patients with chronic salpingitis. Satisfactory results were obtained in 6 patients in whom an abscess that developed in the course of salpingitis was not amenable to any other treatment, general penicillin treatment included. In cases in which the sac of the abscess is accessible by the vaginal route, pus should be removed by puncture and penicillin should be injected into the cavity. Subperitoneal drainage may be employed in cases in which the sac shows an abdominal development, and penicillin should be introduced by means of a drain. If there is no suppurative sac or if it is not accessible, the injection should be made into the inflamed area around the adnexa. In periuterine infection local treatment with penicillin proved to be superior to general treatment with the agent and was effective when the latter failed. It is particularly indicated for periuterine lesions complicated by abscess.

Virus of Poliomyelitis in Sewage.—According to Kling, sewage water played an important part in the dissemination of the virus of poliomyelitis in two epidemics of poliomyelitis in two towns of Sweden during 1944. Sixty-three cases of poliomyelitis were observed in Katrineholm, a town of 11,570 inhabitants, i. e., a sick rate of 54.4 for ten thousand persons. Because of insufficient purification by filtration on sand, the sewage water contaminated the entire water system by which the drinking water was furnished to the population of this town. Fifty-three cases of poliomyelitis occurred in Halmstad, a town of 30,000 inhabitants, i. e., a sick rate of 17.6 for ten thousand. A sewage which apparently contained the specific agent caused contamination of the water which was furnished by one of the three systems of the town. Although experimental proof has not been obtained, the author believes that contaminated water which may be used by man for various purposes should be considered as one of the links which connects the sewage—into which the fecal ultravirus flows—with man who is susceptible to contamination.

Book Notices

Handbook of Diagnosis & Treatment of Venereal Diseases. By A. E. W. McLachlan, M.D., Ch.B., D.P.H. Third edition. Cloth. Price, $5. Pp. 375, with 160 illustrations. Williams and Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2. 1947.

This brings up to date the use of various therapeutic agents, especially penicillin, in the treatment of the various manifestations of syphilis and gonorrhea. Of the *362* pages in this book, the first 203 are devoted to syphilis in all its phases. Although some syphilologists might take issue with the author in the treatment of some phases of syphilis, especially the meager space he has given to fever therapy, on the whole the subject is well presented. The book is well illustrated with 160 pictures, twenty of these in color, and mostly photographs of the various manifestations of the diseases. The chapters are well organized, the subject matter well outlined and the book easy to read. Besides syphilis and gonorrhea other conditions commonly referred to the venereal disease department, such as lymphogranuloma inguinale, balanoposthitis, genital warts and paraphimosis, are briefly considered. As the title states, it is a handbook dealing with the diagnosis and treatment of veneral diseases and as such can be recommended to the busy practitioner and also the undergraduate medical student. To the general practitioner this book can be especially recommended.

The Cerebral Palsied Child and His Care in the Home. Prepared by Viola E. Caldwell, R.N., M.A. Staff Education for Nurses Engaged in Orthopedic Public Health Nursing. Cerebral Palsy Series: Revision of Pamphlet I. Paper. Price, $1. Pp. 196, with illustrations. Association for the Aid of Crippled Children, 580 Fifth Ave., New York 19, **1947**

This dissertation deals with cerebral palsy in education, medical aspects, special therapies, general hygiene and social implications; it is well organized, rather complete in its coverage and well printed. Some aspects of the problem are underemphasized, as for instance the convulsive diatheses of the children. On the other hand some of the practical therapeutic procedures employed in physical therapy and in the teaching of self help and speech are well handled. The appendix giving standard forms employed in functional examinations and illustrating the various types of apparatus and the bibliography are of definite value. This book does not offer any new material or basic contributions to the field, since it consists primarily of quotations and excerpts from various sources. Much of the subject matter is controversial, and unfortunately this fact is not always indicated in the text. As an informational handbook for orientation of public health or orthopedic nurses, it is to be recommended. However, it does not fulfil the need for an authoritative book on the subject of cerebral palsy.

Importancia biológica del potasio. Por el Dr. Vicente Hector Cicardo, profesor titular de física biológica de la Facultad de ciencias médicas de la Universidad nacional de La Plata. Paper. Pp. 254, with 20 illustrations. Librería y Editorial "El Ateneo," Florida 340, Córdoba 2099, Buenos Aires, 1947.

Professor Cicardo's monograph on the biologic importance of potassium is the most exhaustive written on this subject, as the 774 references discussed in the text testify. The book comprises sixteen chapters: 1, the origin and significance of potassium; 2, intracellular potassium; 3, potassium in the tissues; 4, extracellular potassium; 5, toxicity; 6, striated muscle and potassium; 7, cardiac muscle; 8, smooth muscle; 9, nerve; 10, central nervous system; 11, digestive secretions; 12, adrenals; 13, other glands of internal secretion; 14, shock; 15, anoxia, acid-base equilibrium, and 16, potassium in various pathologic conditions. On each of these subjects the author reviews the literature and presents the conclusions derived therefrom as well as from his own work.

Professor Cicardo's own work, presented in detail, was done mostly on frogs and includes cellular permeability to potassium and the influence of ions, specially of calcium; the influence of potassium on muscular contractions; the relation between acetyl choline and potassium, and the role of potassium in nerve transmission; the role of potassium in the mechanism of action of the adrenal glands. His experiments on the role of potassium in the production of shock were performed on dogs.

Although the role of potassium in the performance of all these biologic processes is undeniable, Professor Cicardo seems to have been carried away by his enthusiasm beyond the limits prescribed by the experimental facts. Professor Cicardo's theory of increased permeability of all cells in adrenal insufficiency is interesting and deserves attention.

Simplified Diabetic Manual with 163 International Recipes (American, Jewish, French, German, Italian, Armenian, etc.). By Abraham Rudy, M.D. Revised by Martin M. Nothman, M.D., Instructor in Medicine, Tufts College Medical School, Boston. Introduction by Dr. Frederick M. Allen. Fourth edition. Cloth. Price, $3. Pp. 216, with illustrations. M. Barrows & Co., Inc., 114 E. 32nd St., New York 16, 1947.

With the exception of the chapters devoted to the various menus, especially those concerned with the foods of the various nationalities, this book is too cursory to be helpful to the diabetic person or to the physician concerned with the disease. In the section devoted to "marriage in diabetes," for instance, charts indicate that diabetes is hereditary and yet the closing sentence states that "congenital diabetes is extremely rare." This is confusing to the layman. The chapter on insulin fails to make clear to the average reader the distinctions concerning the three now well known types, for he fails to be specific and sufficiently descriptive in his discussion concerning the time of administration and the actual length of the effect of the various insulins. For example, when writing on globin insulin he states "that one injection may be enough." When is it not enough? How can the reader judge? It is confusing too that the chapter on "diabetes in children" precedes those on "marriage in diabetes" and "diabetes and pregnancy," which two are followed by treatment of the elderly diabetic. The material could well be better arranged. This book is invaluable to one interested in menus but not especially helpful to those concerned with the progress made in treatment of diabetes.

Physical Medicine in General Practice. By William Bierman, M.D., Attending Physical Therapist, Mount Sinai Hospital, New York. With a Chapter on Medical Rehabilitation by Dr. Sidney Licht. Second edition. Cloth. Price, $8. Pp. 686, with 310 illustrations. Paul B. Hoeber, Inc., 49 E. Thirty-Third St., New York 16, 1947.

This carefully planned book not only covers the complete field of physical medicine but also has added interest by numerous clear illustrations for visual teaching. The theme is developed from simple subjects to those requiring more advanced knowledge of basic sciences. The chapter on climatotherapy and spa therapy gives a practical insight into the indications for these physical mediums. The chapters on heat, light and electricity reflect the broad experience of the author in research and use of these measures. The important details of massage, exercise and occupational therapy are included. Dr. Sidney Licht's excellent chapter on rehabilitation shows his realization of the importance of considering the patient as a total personality. Psychologic and physical factors are presented in their proper perspective. The paragraphs on paraplegia and amputations as well as those related to speech, vision and hearing are authoritative from the background of his experience as a medical officer in the recent war and as present consultant in the Veterans Administration. The transition through formal treatment to diversional and work therapy is well developed. In the last third of the book Dr. Bierman includes plans for departments of physical medicine and for treatment. Emphasis is given to professional responsibility, medicolegal problems, dangers and cautions. Diseases of the various systems are discussed in light of indications or contraindications for physical treatment. At the end of each chapter is a list of references for the benefit of readers who wish to pursue certain subjects in greater detail.

One wonders about the title of the book after reading it. Will the general practitioner be able to use this book for easy reference? There is no question but that it will be a useful volume for the physiatrist, physical therapist and occupational therapist. Other physicians with interest and groundwork in physical medicine will, no doubt, appreciate its subject matter. Perhaps, in justice to the author, one should quote from the preface: "I have attempted to emphasize those sections of physical medicine which the general practitioner may be reasonably expected to apply in his practice. I have also made reference to important therapeutic considerations which are beyond the scope of the general practitioner in order that he may become aware of them even though he cannot utilize them himself."

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

ALCOHOLISM AND HEREDITY

To the Editor:—Are there statistics to prove that the children of alcoholic persons are more apt to be imbeciles?

M.D., Monterrey, N.L., Mexico.

Answer.—Belief that alcoholism in man affects the germ plasm lacks substantiation. Since 35 to 40 per cent of alcoholic addicts come from families with epileptic, psychotic or feebleminded members, it is not surprising that the alcoholic persons themselves show a high incidence of these disorders, some of which are known to be hereditary. Excessive drinking cannot be expected to prevent their transmission. Boss (*Monatschr. f. Psychiat. u. Neurol.* **72:**264, 1929) showed that these defects do not appear more frequently in the children of unstigmatized alcoholic persons than they do in the general population.

Roe (*Quart. J. Stud. on Alcohol* **5:**378-393, 1944) reports convincing evidence against hereditary factors caused by alcoholism of parents. She compared adult adjustments of children of alcoholic parents to a control group of children of normal parents, both groups having been raised in foster homes. Significant differences were not found. Greater consumption of alcohol did not occur in the offspring of alcoholic parents than in the control group.

EPIPHYSIAL ARREST

To the Editor:—A boy now aged 12½ years was stricken by poliomyelitis at 2 years of age. His left leg was badly damaged and suffered the loss of the iliopsoas muscle, quadriceps muscle, the peroneus group and others. There is pronounced atrophy and shortening of the left leg of about 1¾ inches (4.5 cm.). The patient walks with a long leg brace (using the gluteus muscles). He is able to walk without a brace but is then more unsteady because of difficulty in locking the knee joint.

The main problem at present and for the future appears to be the difference in length of the lower extremities. This boy comes from a family of medium height, and probably he will not be exceptionally tall. His present height is 4 feet 11 inches (149.86 cm.). Now is probably the time to consider an epiphysial arrest on the unaffected leg. Although there are many reports available recommending this procedure I am led to believe that the reported incidence of deformities following this operation is quite high and discouraging.

Regan and Chatterton (*J. Bone & Joint Surg.* **28:**265 [April] 1946), although recommending the operation, report deformities in 4 of 36 persons with epiphysial arrest. Therefore supracondylar shortening of the femur on the good side done at the end of the growth period, although a more formidable operation, seems more logical and safe to me.

Please give an opinion and estimate the damage that can be done to the spine, which has to make up by compensatory lordosis for the unilateral shortening, if one waits with an equalization by supracondylar shortening until the end of the growth period or young adulthood has been reached?

M.D., Wisconsin.

Answer.—The choice of operative procedure in a case such as that described should be made on the basis of the surgical training and experience of the surgeon who is doing the work.

Opinions with regard to equalization of leg length by epiphysial growth arrest on the normal leg, by femoral shortening after skeletal growth maturity has taken place or by lengthening of the short leg have been fairly well divided among the orthopedic surgeons who have had experience in dealing with this problem.

The most formidable of the three procedures is actual lengthening of the shorter extremity; this should not be undertaken in any instance in which the bones that are to be lengthened are decidedly atrophic from paralytic disuse.

If the spine is completely flexible and without evidence of structural scoliosis, no great damage may result from delaying surgical procedures until skeletal maturity has been achieved.

A more accurate equalization of leg length can be obtained through the resection of a carefully measured segment of the femur. The healing of the femur following such resection may be prolonged over a period of six months or more, and this procedure certainly does represent a much more formidable operative and postoperative program than is required by epiphysial growth arrest.

For the patient described, an arrest of growth of the distal end of the femur would be a much more simple and safe operation. In all probability, an arrest at this age would bring about approximate equalization of the length of the leg, by the time this boy is fully grown.

Deformities resulting from growth arrest operations have not been significant. In an occasional patient the arrest becomes complete for one femoral condyle before it does for the other, resulting in some degree of knockknee or bowleg. If the operation is thorough, with a bone graft laid across the epiphysial line, as described by Phemister, a complete checking of longitudinal growth from the lower femoral epiphysis can be anticipated within a period of three to five months and no deformity will result. In an infrequent instance as a result of the growth arrest the leg that was originally short may be a little longer than the other leg when full skeletal maturity has been reached. In no instance that has been recorded has this difference been significant.

SCALENUS ANTICUS SYNDROME

To the Editor:—Give details on diagnosis of "scalenus anticus syndrome."

What per cent of disability is ordinarily allowed for a simple fracture of the clavicle?

What is the latest and most acceptable book giving interpretation and per cent of disabilities allowed for various types of injury?

M.D., New Jersey.

Answer.—Symptoms of the scalenus anticus syndrome are as follows: The patient usually complains of pain over the outer surface of the shoulder on the involved side. This pain may extend down the arm or radiate up the back of the neck with referral to the seventh cervical spinous process (vertebral prominens). At times the pain may be referred along the course of the ulnar or median nerves in the arm and forearm. The pain can be relieved if the patients turns his head to the affected side or raises his elbow. Frequently there is tenderness of the scalenus muscle at its attachment to the first rib. Decreased sensation to all forms of stimuli occur in the arm and forearm; atrophy and total loss of sensation are seldom seen. Treatment is either palliative or surgical. The former is used in mild cases as exercise of the involved shoulder region in order to strengthen the trapezius and other muscles which elevate the shoulder girdle. In most cases surgical treatment is required. This consists of sectioning the scalenus anticus muscle and also any fibers of the scalenus medius which seem to be tense. In some cases resection of a cervical rib may be necessary. This syndrome was originally described by Naffziger of San Francisco. For an excellent description refer to the original article (Naffziger, H. C.: The Scalenus Syndrome, *Surgery, Gynec. & Obst.* **64:**119, 1937).

Usually in a simple fracture of the clavicle without displacement or overriding of the fragments there is no percentage of permanent disability because there is no disability.

Since the Industrial Commissions in the various states of the union operate individually, there is no publication on percentages of total, temporary or permanent disability that can be purchased. Write to the Industrial Commission in your state. They can give you the information you need.

TUBERCULOSIS IN DIABETIC PERSONS

To the Editor:—What is the incidence of tuberculosis among diabetic persons as compared to that of tuberculosis in the general population. Can this information be broken down to reveal the percentage of cases observed in diabetic clinics versus those first seen in hospital wards (i. e., uncontrolled and complicated cases of diabetes mellitus) and those first observed in tuberculosis hospitals? Recent discussion in a diabetic clinic brought out the point that not a single case of tuberculosis had been seen during the time that chest surveying had been instituted at the clinic. My feeling is that controlled diabetes would not exhibit an increased incidence of tuberculosis, whereas it might be noted among persons with uncontrolled diabetes (hospitalized patients) or those already in tuberculosis hospitals.

Jean P. Papps, M.D., Forest Hills, N. Y.

Answer.—Prior to the advent of insulin necropsies revealed that one fourth to one third of persons dead from diabetes also had tuberculosis. However, since 1926 tuberculosis in an active stage has seldom been found at necropsy in more than 6 or 7 per cent of diabetic persons. H. F. Root in 1934 (*New England J. Med.* **210:**1, 78, 127 and 192, 1934) published extensive observations on the association of diabetes and tuberculosis. He found that active tuberculosis occurred in diabetic patients at necropsy between two and three times as frequently as among nondiabetic patients. Among 750 children in whom there developed diabetes before the age of 15 years the reinfection type of pulmonary tuberculosis was more than thirteen times as frequent as in Massachusetts school children. Among adolescent diabetic patients who contracted the disease between the ages of 15 and 20 years, pulmonary tuberculosis occurred sixteen times as frequently as in Massachusetts high school students. There was roentgenologic evidence which suggested active pulmonary tuberculosis in 2.8 per cent of 1,373 adults with diabetes.

A. L. Banyai and A. V. Cadden (The Rationale of the Therapeutic Administration of Massive Doses of Vitamin A in Tuberculous diabetics, *Dis. Chest* **10:**133, 1944) reported that 2.6 per cent of a large number of diabetic patients were found to have pulmonary tuberculosis. Wiener and Kavee (*Am. Rev. Tuberc.* **34:**179, 1936) reported that 23.9 per cent of 909 diabetic patients had tuberculosis. However, this high figure is probably due to the large proportion of the patients in Montefiore Hospital, New York, who have tuberculosis. Himsworth (Pulmonary Tuberculosis Complicating Diabetes Mellitus, *Quart. J. Med.* **7:**373, 1938) has collected data which show that since the introduction of insulin pulmonary tuberculosis develops in 2.7 per cent of those with diabetes.

There is good evidence that the increased incidence of tuberculosis in diabetic patients now is for the most part among those whose diabetes has been uncontrolled or inadequately treated. When the two diseases are associated the diabetes is discovered before the tuberculosis in 65 to 80 per cent of the patients. Tuberculosis appears more frequently among those with severe forms of diabetes than among those with mild forms. For example, among those who had diabetic coma, in 8 per cent tuberculosis developed within three years, which is fourteen times the incidence of pulmonary tuberculosis in the general population. J. Kavee (Pulmonary Tuberculosis and Diabetes Mellitus, *Bull. Am. Acad. Tuberc. Physicians* **4:**147, 1940) observed pulmonary tuberculosis both in mild and in severe cases of diabetes at the Montefiore Hospital. However, the proportion of patients with pulmonary tuberculosis who had the severe form of diabetes was much greater than usual among diabetic persons of similar age. It has been generally observed that diabetic patients with pulmonary tuberculosis nearly always require insulin. Likewise, pulmonary tuberculosis in the presence of diabetes usually requires collapse therapy.

Kavee reported that among 332 patients who entered Montefiore Hospital only 17 had well controlled tuberculous lesions. In 15 of these cases the tuberculous lesions had not progressed or reactivated over a considerable period of observation, some as long as ten years. Since old inactive pulmonary tuberculosis seldom becomes reactivated and since minimal pulmonary lesions without symptoms, cavitation or positive sputum often recede in persons with well controlled diabetes, there apparently is little likelihood that persons with well controlled diabetes who are free from tuberculosis are any more likely to have primary lesions and the subsequent reinfection type of disease develop than are persons in the general population. Therefore, your contention apparently is correct.

Nevertheless, every diabetic patient whose condition is not adequately controlled should be kept under close observation, as such persons are two or three times more likely than others to acquire clinical tuberculosis. Both reactors and nonreactors to tuberculin should be closely guarded against contact with contagious tuberculosis, as first infection and reinfection are dangerous to them.

There is no reason to suspect that persons with well controlled diabetes are less likely to contract tuberculosis than those in the general population. Therefore, even the best controlled patients should be carefully protected against first infection and reinfection types of tuberculosis. Should clinical disease appear and show evidence of continued activity, collapse therapy should be promptly instituted.

RADIOIODINE

To the Editor:—What are new trends or methods of treating cancer? A woman, aged 68, has a malignancy of the throat. She had had a complete series of high voltage roentgen therapy and had shown little or no improvement. The family have been reading about radioactive therapy and also the use of atomic therapy and would like to know the advisability of using that on the woman. I know nothing about such treatment and would like advice about the matter.

M.D., Illinois.

ANSWER.—What is meant by "malignancy of the throat?" Without better information part of the question is unanswerable. The term "atomic therapy" is not familiar. "Radioactive therapy" probably means use of one of the radioactive isotopes. If by "malignancy of the throat" the correspondent by chance might mean cancer of the thyroid the answer would be that radioactive iodine has a limited value in certain types of the disease, its value being dependent on the results of preliminary tracer studies for iodine pick-up by the tumor. Nothing is known of any isotope of potential value in any other type of cancer which is primary in the area described and which is proved to be radioresistant to the roentgen ray. Even if the tumor is a lymphosarcoma, if it is resistant to roentgen therapy there would be no reason to hope that it would respond to a radioactive isotope.

ACROMEGALY

To the Editor:—A man aged 30 presents some of the clinical features of acromegaly (increase in the length of bones of the hands) and hypogonadism (impotence, small penis and testicles, obesity of female type, scanty beard growth).

Roentgen examination of the skull revealed an enlargement of the pituitary fossa (25 mm. by 11 mm.) with destruction of the dorsum sellae and the anterior clinoid processes. His basal metabolic rate was minus 15 per cent; the cholesterol content of the blood was 400 mg. per hundred cubic centimeters. He has no glycosuria. The blood sugar curve was rather flat. Eye examination did not reveal abnormality of the fields of vision or evidence of choking of disks.

The patient's only complaint is impotence. He claims to have had normal sexual functions some eight to nine years ago. There occurred a sudden increase in weight four years ago during a particularly strenuous period (during the Italian Campaign).

What substitutive treatment is indicated? Is irradiation of the pituitary imperative or could it wait until signs of further extension of the tumor develop?

Would chorionic gonadotropin be useful, and to what extent could it cure the patient's impotence? What is the prognosis?

M.D., Newfoundland.

ANSWER.—In acromegaly there is a disturbance of many of the glands of internal secretion, and of course the pituitary gland is one which has to do with sexual desire and ability. I believe that administration of the hormones is indicated. The substance used may be "Antuitrin S" (chorionic gonadotropin) or alcohol extracts of anterior pituitary, testicles and the adrenals, with which there has been some success and which may be administered every other day until a series of twelve injections has been given.

Irradiation of the pituitary is not absolutely essential unless signs of further extension of the tumor develop.

The prognosis in such a case is poor, and the course of injections may have to be repeated on numerous occasions.

DERMATITIS PATCH TESTING

To the Editor:—A patient, aged 60, a railroad agent, has a severe dermatitis on his legs, hands, arms and face. It has occurred at intervals during the last two years. I believe it is due to a rubber raincoat, similar to the type used by the Army. What specific substance in the raincoat would be likely to be responsible for the dermatitis? Might it be due to tetramethyl thiuram disulfide?

Delmer E. Johnson, M.D., Alamosa, Colo.

ANSWER.—To incriminate the raincoat a patch test with the inside or the lining of the raincoat should be positive. Even this would not be absolute proof, because it is most unusual for a contact dermatitis to develop on parts which are not in contact with the article of wearing apparel. Raincoats are not usually worn in contact with the skin, and it is hardly conceivable that a chemical in the raincoat or on its external surface would leach out in sufficient quantity to penetrate through the clothing and reach the skin.

Once the raincoat has been established as the cause of the dermatitis, the manufacturers of it should be requested to give the composition of the material from which it was made and the chemicals which it contains.

The Army had raincoats made of vinyl resin films ("vinylite," "koroseal"), of fabrics coated with these films and of rubberized fabrics.

It has been found that plasticizers and stabilizers are the most common sensitizers in the vinyl resin films. In rubber materials the usual sensitizers are the accelerators, the antioxidants and the chemicals formed on the surface of the rubber by the so-called acid or vapor cure, in which sulphur monochloride is the curing agent. Tetramethyl thiuram disulfide ("tuads") is only one of the many rubber accelerators which has been reported as causing sensitization dermatitis.

When the chemicals in the raincoat have been ascertained, patch tests of the patient with each of them, using the proper technic, may reveal the chemical to which the patient is sensitive.

References:

Schwartz, L.; Tulipan, L., and Peck, S. M.: Occupational Diseases of the Skin, ed. 2, Philadelphia, Lea & Febiger, 1947.

Schwartz, L., and Peck, S. M.: *Dermatitis from Wearing Apparel.* J. A. M. A. **128:** 1209-1217 (Aug. 25) 1945.

HOOKWORM INFESTATION

To the Editor:—Are there reported cases of bronchial asthma caused by hookworm infestation? What is the treatment other than elimination of the parasite from the alimentary canal?

Herbert A. McClure, M.D., Lake City, Fla.

ANSWER.—Infestation with parasitic worms produces a hypersensitivity that is evidenced on skin test by an immediate wheal from intradermal injection of an extract and the finding of transferable antibodies (reagins). These facts provide the basis for the possibility that allergic manifestations such as asthma can be produced by hookworm infestation. Reports of authenticated cases were not found in the literature. Elimination of the hookworm infestation is the logical procedure in such a suspected case.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 136, No 13 CHICAGO, ILLINOIS MARCH 27, 1948

Copyright, 1948, by American Medical Association

PERSONALITY AND CHRONIC ILLNESS

JURGEN RUESCH, M.D.
and
KARL M. BOWMAN, M.D.
San Francisco

The way a person lives determines in part the disease he will contract. This concept, which for centuries was known to be valid for occupational and infectious diseases, has been extended in recent years to include not only exposure to specific noxious agents but repeated and chronic exposure to subtle and nonspecific trauma as well. While epidemiology and public health and preventive medicine have been particularly interested in the habits of people with occupational and infectious diseases, psychosomatic medicine has concentrated on similar aspects in persons with chronic disease. However, it was found that study of habits alone was not sufficient, but that the whole life situation of the patient had to be encompassed. Living means interaction with the environment. Conflict arises when the environment actually interferes with a person's wishes or when he anticipates that interference will or would occur. The resulting stress and strain, if persisting over a long period, creates or contributes toward physical and mental pathologic states. In medicine, therefore, personality studies serve the physician's purpose of inquiring into behavior patterns and conflicts in order to formulate preventive and therapeutic measures.

THE MAGNITUDE OF THE PROBLEM

In the United States about 25,000,000 people suffer from disabling or nondisabling chronic disease.[1] Furthermore, the age of the patient, as well as the mortality and morbidity for, and the duration of disability from, chronic conditions, are steadily increasing. Advice counseling and psychotherapy may prevent illness in patients who are prone to accidents, who tend toward chronic alcoholism; who are promiscuous and contract venereal disease and who have gastrointestinal and vascular conditions. In cases of invalidism from arthritis, myopathy, neurologic disease, tuberculosis, blindness, deafness, amputation of the extremities and other disfigurations, psychologic adjustment to the disability is frequently the only therapy. Whereas in former centuries disease and accident killed a great many people, thus making longevity rare, the triumphs of medicine have extended considerably the life expectancy in modern times. However, every single advance in medicine upsets the existing social structure in a population; this unbalance, in turn, creates new medical problems; therefore, one has to recognize that the sociopsychologic problems created by scientific advances are also a responsibility of medicine. At the moment, the burden is carried by public health services, preventive medicine, population studies and insurance medicine, all of which emphasize the mass aspects of this problem, while personality studies approach the same question from an individual standpoint. But soon the medical profession at large will have to share in the management of social and psychologic problems in medicine if an adequate job shall be done.

The personality of the patient already becomes a frequent topic and concern of medicine; this tendency is clearly borne out by the ever increasing number of publications concerned with psychologic problems in relation to illness. Since time prohibits a detailed survey of the literature, reference will be made to three sources only. The most comprehensive review of problems of adjustment to physical handicaps and illness was made by Barker, Wright and Gonick [3]; Dunbar's [4] abstracts of the literature on psychosomatic problems appeared in a new edition, while Saul [5] summarized facts and concepts prevailing in this field. Recently a number of organizations have sponsored personality studies in relation to illness. Under the auspices of the Office of Scientific Research and Development, the division of psychiatry of the University of California Medical School investigated psychologic aspects of delayed recovery from accidents and illness; syndromes following head trauma,[6] invalidism following chronic disease in general,[7] duodenal ulcer [8] and disability following thyroidectomy [9] were the topics of this four year study. General principles, approach, methods and results of these personality studies will be discussed with the help of this material.

From the Division of Psychiatry, University of California Medical School, and the Langley Porter Clinic

Read before the Section on Nervous and Mental Diseases at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

[1] Perrott, G. St. J.: The Problem of Chronic Disease, Psychosom. Med. **7**: 21-27, 1945.

[2] Halliday, J. L.: Epidemiology and the Psychosomatic Affections: A Study in Social Medicine, Lancet **2**: 185-191, 1946.

[3] Barker, R. G.; Wright, B. A., and Gonick, M. R.: Adjustment to Physical Handicap and Illness: A Survey of the Social Psychology of Physique and Disability, Bulletin 55, Social Science Research Council, 1946, p. 372.

[4] Dunbar, F.: Emotions and Bodily Changes. A Survey of Literature and Psychosomatic Interrelationships 1910-1945, New York, Columbia University Press, 1946, p. 604.

[5] Saul, L. J.: Physiological Effects of Emotional Tension, in Hunt, J. McV.: Personality and the Behavior Disorders, New York, The Ronald Press Company, 1944.

[6] (*a*) Ruesch, J.; Harris, R. E., and Bowman, K. M.: Pre- and Post-Traumatic Personality in Head Injuries, A. Research Nerv. & Ment. Dis., Proc. (1943) **24**: 507-544, 1945. (*b*) Ruesch, J., and Bowman, K. M.: Prolonged Post-Traumatic Syndromes Following Head Injury, Am. J. Psychiat. **102**: 145-163, 1945.

[7] Ruesch, J., and others: Chronic Disease and Psychological Invalidism, Psychosomatic Medicine Monographs, New York, Psychosomatic Medicine, 1946.

[8] Ruesch, J., and others: Duodenal Ulcer: A Psychosomatic Study, Psychosomatic Medicine Monographs, New York, American Society Research Psychosomatic Problems, 1946.

[9] Ruesch, J., and others: Psychological Invalidism in Thyroidectomized Patients, Psychosom. Med. **9**: 77-91 (March-April) 1947.

SPECIFICITY OF PSYCHOPHYSICAL CORRELATIONS

In psychosomatic medicine there exist two slightly different approaches. Some authors hold that each physical condition should ultimately be related to specific psychologic conflicts and social constellations. Though there exists enough evidence to point out that patients with duodenal ulcer, for example, resemble each other so far as psychologic and social features are concerned, one may, on the other hand, find similar aspects in patients with chronic alcoholism. Therefore, a second opinion holds that there are no such specific correlations of conflict, personality structure and physical manifestations, but that stress and strain can be associated with a multitude of physical reactions. The choice of system and organs affected is said to be determined by other than psychologic reasons, but once the pathologic or pathophysiologic condition is established, tension and frustration perpetuate and aggravate existing conditions.

In considering the evidence in favor of either of these arguments, one must admit that both opinions can be supported by facts. Psychosomatic syndromes, apparently, have to be divided into subgroups in order to be fully appreciated.

The most specific relation between conflict and symptom is found in hysterical patients, in whom paralysis of one or more of the extremities, blindness and other symptoms have a specific meaning. They are used by the patient to solve temporarily an otherwise unbearable conflict.

In a second type the physical pathologic condition is incidental and the result of conscious or unconscious attitudes or desires. As examples may be mentioned persons who overeat, who permanently clear their throat, who scratch their skin, suck their thumb, bite their finger nails, drink liquor, consume barbiturates or expose themselves to accidents. In these patients there exist frustrations which are managed by some kind of activity, which in turn leads to deformity, illness or accident.

A third, and slightly different, relation between frustration and disease is found in a number of vascular, gastrointestinal and pain syndromes. One has to remember that frustration is psychologically expressed in anger and physically in terms of tension. Outside interference with a person's goal-directed behavior produces anger and tension and prepares the organism for fight or flight. The pulse rate and blood pressure go up; muscular tension ensues, and some biochemical changes take place. After release of energy in terms of action, the organism returns to its normal resting condition. However, in modern civilization the primitive reactions of flight or fight cannot be used without previously learning complicated procedures and modifications of these primitive reactions, and many persons are unable to acquire these socially acceptable forms of behavior. While the normal person channelizes aggression in work, play and sex, maladjusted and immature persons are unable to release pent-up energy. Anger and tension, therefore, persist over prolonged periods because no discharge of energy occurs. This condition of suspension seems to influence vascular, muscular, secretory and endocrine reactions.

The fourth, and most nonspecific, type of mind-body relation occurs when incidentally acquired illness coincides in time with some psychologic experience which has nothing to do with the disease.[7] It is old knowledge that if a person is sick and receives unfavorable news he may have a severe relapse or prolongation of his condition. In such a case frustration brought about by disease is combined with frustration brought about by the psychologic conflict, and the two together may be more than the patient can bear. In addition, the two events get tied up together and subsequent behavior follows the laws of conditioning and deconditioning; as long as the psychologic conflict lasts, the physical disability is continued, and vice versa.

The fifth, and last type that must be mentioned is the direct result of medical or surgical treatment. For example, therapy can lead to drug addiction, barbiturate or bromide intoxication, multiple operations, roentgen ray burns and similar conditions, while insecurity of the physician may lead to superfluous and damaging perpetual diagnostic examination. If the person happens to be neurotically inclined, physical treatment for psychogenic symptoms inculcates in him the idea that his disease is physical, that there is nothing he can do to recover, and he then becomes an invalid.

VARIABLES USED IN PERSONALITY STUDIES

Personality can be described in various terms. Fundamentally, one can distinguish between static and dynamic features. The static variables describe the personality in terms of recurring or consistently present features; as examples may be mentioned intelligence, personality traits and attitudes. In contrast, the dynamic variables attempt to describe the processes themselves, which occur either within the person or in his contact with the outside world. It is obvious that these dynamic aspects are technically more difficult to approach but that, at the same time, they contain more valuable information. It would be a fair statement that up to recent times the static variables were the domain of the psychologist, the individual dynamic variables the domain of the psychiatrist and the social dynamic features the domain of the sociologist and the cultural anthropologist. In our present studies we have attempted to have all three types of variables represented because combined they yield a rather complete description of the personality.

STATISTICAL RESULTS IN PATIENTS WITH CHRONIC DISEASE AND PSYCHOLOGIC INVALIDISM

Overt clashes with law-enforcing agencies are rare. Persons with chronic disease are on the whole law-abiding citizens; instead, maladjustment is expressed in terms of disease and sexual and marital difficulties.[7] For all groups, the divorce rate for the women is considerably higher than that for the normal population. Their health record varies. Thyroidectomized and posttraumatic patients have a higher number of hospitalizations than patients with duodenal ulcer, for example.

Intelligence.—All patients with chronic syndromes studied had an above average intelligence, in spite of an average education. It follows that the more intelligent persons tend to have difficulties with recovery and adjustment to disability.

Personality Profiles.—With the use of objective personality tests, such as the Minnesota Multiphasic Personality Inventory, or of projective technics, like the Rorschach test, the Thematic Apperception Test [10b] and play technics,[10a] the fact is clearly revealed that the majority of patients with chronic disease have a highly abnormal score, and one very much like persons who suffer from clearcut psychoneuroses without any physi-

---

[10] Renaud, H.: (a) Contexts of Aggression: Play Constructions of Head Injuries and Psochoneurotics, J. Psychol. 21:307-326, 1946; (b) Group Differences in Fantasies: Head Injuries, Psychoneurotics and Brain Diseases, ibid. 21:327-346, 1946.

cal symptoms. Results of these tests prove objectively that measurable psychologic aberrations exist in these persons; the degree of abnormality is about equally great in patients with chronic invalidism from a variety of causes such as chronic duodenal ulcer, chronic alcoholism and protracted syndromes following head injury, and in patients with persisting nervous symptoms following thyroidectomy.

CHILDHOOD HISTORY

Considering first the objective aberrations shown by the childhood history, one finds in almost all groups a high incidence of broken homes.[11] This is particularly true of the thyroidectomized patients. In a mixed group of patients with chronic disease and patients with duodenal ulcer, an unusual incidence of youngest and younger children was found, which significantly exceeded that of oldest and older children. In contrast, the thyroid patients tended to be the older or the oldest children. These facts are of importance, for it is known that the oldest and the youngest children are more exposed than those in the middle of the family; youngest and younger children usually receive more care from adults and older siblings than do children who are in the middle of a large series. Furthermore, the youngest children are usually isolated in terms of age relationship with other siblings, a situation which, in turn, promotes fantasy development and dreaming rather than the reality experience. For example, the adaptive behavior of a child who is the fourth in a series of seven is greater because social technics are learned for the handling of parents, older siblings and younger siblings. In contrast, the youngest children learn only the technics which are related to the handling of older siblings and parents, which methods are known to comprise submission, rivalry, avoidance and adaptation, rather than overt dominance. People who exert overt dominance do not seem to have prolonged recovery, whereas, in contrast, people who always have to adapt to others, who depend on being told what to do, are inclined to be sick for prolonged periods.

An attempt was made to reconstruct the relationship with the parents. For this purpose three factors were considered essential.[12] The major source of authority reenforcing the behavior of the child by reward or punishment was considered the outstanding feature. The second essential factor was labeled "ideal model." It constitutes that source from which the child takes over cues, imitates behavior and copies manners and gestures. If the relationship to the ideal model is a sound one, the child will identify thoroughly with that person; if, however, the relationship is a poor one, the child will identify only partially and is likely to take over external mannerisms rather than internal values. The third factor considered was the source of affection. In the normal boy and girl both parents are sources of authority, ideals and affection, whereby in the boy the authority and ideals derive more from the father, and in the girl, more from the mother.

In reconstructing these childhood events, it was discovered that among the patients with ulcer, for example, there was not a single person, and of thyroidectomized women only one-third, with a normal pattern. The patients with other forms of chronic disease were distributed into patterns which were characterized by an overbearing, dominant mother and a remote father, or vice versa, by a punitive, overbearing father and a weak and ineffectual mother. The essence of these findings was that concentration of authority, ideals and source of affection in one and the same person provokes the child to develop one-sided technics, rendering him oblivious to the fact that later in life other situations and other people will require different technics. In contrast, in families in which both parents fulfil their function the technics are more diversified, and if punishment occurs it does not threaten the relationship to both parents, but usually only that to one parent at the time. In case of the dominant mother punishment actually undermines the whole existence of the child. With the help of these childhood patterns it was easy to trace the development of the adult character abnormalities described in the next paragraph.

CHARACTER CONFLICTS

In rating the outstanding character conflicts of our patients, we found that in all men the problem of dependence versus independence was most prominent.[11] By "dependence" is meant the need of a person to monopolize, or permanently to ascertain, the flow of affection of one or more human beings. In reality, this is done either by submitting, subordinating and attempting to please, taking care never to express any antagonism or anger, or, in contrast, by striving for unusual achievements and assumption of responsibilities. The difference between normal and dependent patients is seen in the fact that dependent persons break down either when the source of dependence is withdrawn, as in separation, or when achievement and compensatory striving are made impossible. Such is particularly the case with patients who have duodenal ulcer.

In women the problem of choice between self love and love of other persons was a primary conflict. It was most clearly expressed in hysterical personalities; being unable to remain attached to others, these women maintained highly unstable relations, which fact was expressed in their high divorce rate. Their affinity to others was characterized not by empathy and the like but, instead, by using these other persons to feed their vanity and to applaud their own tendency to show off. As long as change enabled these women to assert their desirability things went fairly well, but as soon as marriage and permanency were required these women lost their mechanism of self assertion and broke down.

It is our impression that in medicine the dependent man and the hysterical woman represent the major cause of invalidism. We found this to be true for men with duodenal ulcer, head injuries, goiter and certain forms of hypertension. In women the hysterical characters appear in cases of thyroid disease, hysterical pain syndromes, polysurgery, post-traumatic syndromes and other groups; to put it in other words, in dependent men and hysterical women the susceptibility to disease and accident is greater, the chance for recovery poorer and the time of convalescence longer.

GROUP MEMBERSHIP

In studying formal and informal associations to which these patients belong, one obtains a great deal of knowledge concerning the patients themselves. This approach conceives the individual not so much as the product of a unique combination of features, but more the result of group influences to which he has been subjected, directly, in his contacts with outsiders and, indirectly, through his parents and their contacts. To use a comparison, if one wants to gain insight into the life of ants or bees, one has to study the social organization in which they live; the same is true of patients.

---

[11] Ruesch and others, footnotes 7, 8 and 9.

[12] Ruesch and others, footnotes 8 and 9.

Considering first the social class membership, one must turn to studies made by leading sociologists and anthropologists.[13] It has been conclusively shown that American society is not distributed evenly along a continuum from poor to wealthy, from disreputable to reputable, from unsuccessful to successful, but that the population clusters in groups, which are called social classes. This term is just another way of saying that the industrial workers, for example, have different associations, beliefs and attitudes than middle class people who live in country club heights; these, in turn, have different attitudes than the millionaires whose wealth has been passed on from generation to generation. The social classes are of importance with relation to disease because they induce the people to live according to certain standards and norms. Persons of the lower class, for example, are more exposed to industrial hazards than the middle class white collar worker, but in turn, psychosomatic conditions and chronic illnesses seem to concentrate around the middle class.[7] Whether this is a true picture of the incidence of illness, or whether it merely reflects the fact that the middle class person goes to the physician and the hospital and is better fitted to survive illness and accident because of his better environment, cannot be decided at present; but it is known that people with chronic disease and psychologic invalidism have many characteristics of the middle class. They are law abiding, and, up to the time of the disease, self supporting; they are conformists, and their repressive tendencies are great; their field of awareness is rather limited, and they have difficulty in expressing anger and in managing tension.

In America there exists a premium for people who make good. Working themselves up and achieving fame and prestige is one of the recognized ways of living. This public ideology, in turn, imposes unusual stress and strain on the individual. People feel the necessity to improve their condition, rather than to enjoy their existence. The striving for betterment, income, position, power and property requires a permanent adaptation of the individual to new groups. He has to undergo a remarkable change in his system of values, in his technics of mastery and in the habits and customs acquired in childhood if he changes from one social class to another. In such a change the "know how" is lost; the person becomes isolated; and a social, mental or physical pathologic state is the result. We have been able to show that among patients with chronic disease in general, with duodenal ulcers and with thyroid disorders there is an unusual number of social climbers and strainers, that is, persons who want to improve their social status. This is in contrast, for example, with the findings for chronic alcoholism, in which condition the patients have usually fallen socially. In patients with ulcer and thyroid conditions in particular, there was an unusual incidence of foreign-born and native-born persons of foreign parentage. This fact would indicate that culture change and the resulting conflict of values were a source of stress and strain in these patients.

CULTURE CHANGE AND DISEASE

In the course of these studies, it became apparent that culture change plays a major role in chronic disease.[14] Regardless of whether the change involves moving from east to west, from country to city, from civilian to military life or from Navy environment to home, from one social class to another or from foreign born to American, the principles involved remain the same. We have estimated that approximately one half the American population at any one time is in the process of culture change. This involves readaptation and relearning of ways of living, attitudes, beliefs and system of values. While undergoing this change, there exists a particularly critical phase in which the individual is well underway toward giving up the old system of values and his membership in the old groups but has not yet mastered the new values of, and is not yet rooted in, the new groups. Isolation is the result; the need for social recognition cannot be gratified, and frequently refuge in chronic invalidism seems to be the only possible solution. Illness in itself, however, may serve a double purpose; it establishes the patient in a hospital and among sick people, while at the same time it justifies isolation and makes the social situation tolerable

ATTITUDES TOWARD PHYSICIANS

Interviews and inventories were used to study the attitude of various groups of patients.[12] The results indicated that the physician-patient relationship was largely governed by features which had little, if any, relation to medicine. Attitudes toward parents, substitution of physician for parent, desire to receive attention and affection and the striving to climb socially were frequently more important than the doctor's knowledge. For example, the most neurotic patients, in terms of personality profiles, described the doctor as having nurturant and supportive features, while the most normal patients emphasized the desirability of a good character in the physician. Social climbers and strainers tended to project their own problems onto the physician and assigned the doctor authoritarian qualities. A clearcut relationship between childhood patterns and the attitude toward the doctor was thus established. Patients with an idealized and beloved mother tended to idealize the physician, while patients with an authoritarian mother expressed a desire for medical authority. The medical attitude scales also revealed that lower middle class people were readier to accept gullibilities in terms of popular sayings, superstitions and advertisements of quacks than were people of the upper middle class or the lower class. The latter feature indicates that a certain degree of naïveté and conformity promotes psychologic invalid reactions, while skepticism and nonconformance are deterrent to delayed recovery.

PROGNOSIS

With the help of the Minnesota Multiphasic Personality Inventory, it was possible to predict the speed of recovery.[15] Patients with delayed recovery from a variety of diseases had more abnormal profiles than those with normal recovery. With the same method, it was possible to show that patients with relatively normal profiles were better subjects for psychotherapy and improved under relatively shorter treatment than those with more abnormal profiles.

SUMMARY

Though differences exist among the various groups of chronic illnesses studied, the features which the patients have in common by far outweigh their differences. On the whole, one may state that the most essential features of these patients were found in their lack of adaptive behavior and in unsatisfactory technics in meeting social changes. Whenever a change in the relationship between these patients and their environment produced a stress situation, the patient tended to break down. These changes were related either to daily events, such as death, birth or marriage, or to more fundamental issues, such as culture change. Here, relearning of external symbols, habits and attitudes, as well as reorientation of internalized values, was more than the patient could bear. Adaptive behavior and psychologic awareness, in turn, were inversely related to the need for conformance of these patients. Conformance in the American society is most pronounced in the lower middle class and diminishes toward both ends of the distribution. The lower middle class, with its tendency toward compliance, is more gullible and tends to accept more readily everything at its face value, which features obviously handicap adaptive behavior. This particular constellation of factors seems to be responsible for the concentration of psychologic invalid reactions in the middle class. However, in all social classes one meets abnormalities of character brought about by devious childhood situations. Though the child was prepared to manage the immediate family environment, he or she failed when thrown on his own. Invalidism, then, is the temporary solution to failure in socialization and successful experimentation with reality. The dependent male and the hysterical female are the prototypes of personalities which tend toward delayed recovery, invite abuses in medicine and surgery and, generally speaking, make the life of the physician unnecessarily difficult. Early recognition and psychotherapeutic treatment tend to prevent disagreeable complications.

---

[13] Warner, W. L., and Lunt, P. S.: The Social Life of a Modern Community, New Haven, Conn., Yale University Press, 1941, p. 450.

[14] Ruesch, J.: Social Techniques, Social Status and Social Change in Illness, to be published. Ruesch, J.; Loeb, M. B., and Jacobson, A.: Acculturation and Illness, to be published.

[15] Harris, R. E., and Christiansen, C.: Prediction of Response to Brief Psychotherapy, J. Psychol. **21**: 269-284, 1946.

University of California Hospital
Langley Porter Clinic.

ABSTRACT OF DISCUSSION

Dr. O. Spurgeon English, Philadelphia: As the chairman has shown, all are only relatively well conditioned to responsibility, so that every one continues to have some specific dependency needs. Therefore, in every acute illness and in every surgical operation, no matter how skilfully or well done, the experience tends to combine with and to enhance these dependency needs and to make one a victim of what may be called acute invalidism, with a predisposition to chronic invalidism. It seems, however, that we physicians are becoming more aware of these possibilities. In every hospital, and in every practice, we must try to do more about them with the patient if we are to reduce the amount of invalidism which follows nearly every operation or illness. I might say a word about what is called the countertransference in attempting this maneuver. After a person has had an illness, or an operation, one may be reluctant, no matter how carefully it is phrased, to ask the patient what amounts to whether he is capitalizing on his illness or his operation. That is a difficult matter to take up with the patient, but I believe we have a duty to society to do so and an obligation to the patient to do something for his own good, and thereby to prevent those days, and sometimes weeks and months, which are occupied with convalescence.

Dr. Karl M. Bowman, San Francisco: The new idea of getting patients up and out of bed a few days after an operation is a method of preventing chronic invalidism, and probably has a psychologic more than a physiologic basis, although it has both. A patient who is made to lie in bed several weeks after an operation is conditioned to inactivity and is more likely to become a chronic invalid. If, however, a patient is persuaded to get up two, three or four days after an operation and is encouraged to resume as many activities as possible, it woll help prevent the delayed recovery response which is such a common precursor of the chronic invalid reaction.

LOCAL TREATMENT OF CARRIERS OF VIRULENT DIPHTHERIA WITH PENICILLIN

A. J. LEVY, M.D., Ph.D.
Dixon, Ill.

From the Dixon State Hospital, Warren G. Murray, M.D., Superintendent and the Department of Public Welfare, Springfield, Ill.

Rosenau[1] stated that under normal conditions 1 or 2 per cent of any population harbor virulent diphtheria. When an acute case of diphtheria occurs in a locality, the incidence is considerably increased (to about 14 per cent in institutions), and according to Schick[2] it varies from .3 to 83 per cent. Zingher.[3] found that the carrier rate in a community is even higher than that suggested by Rosenau, varying between 4 and 5 per cent.

Institutions, orphanages, camps, prisons, schools and state hospitals, or places which house an aggregation of many under one roof, serve as fertile soil for the spread of diphtheria. Therefore constant vigilance must be maintained to protect school children, inmates, patients and employees against this disease. Diphtheria carriers in a well protected community may be considered harmless. However they still are a menace to that portion of the population which lacks immunity, for in spite of all precautions sporadic cases do occur.

Many methods have been suggested for the treatment of diphtheria carriers, such as the use of antiseptics in swabbing, spraying, gargling and inhaling, the injection of serums, toxins, antitoxins and vaccines or the supplanting of the virulent Corynebacterium diphtheriae by cultures of staphylococci or yeast. However, none of these methods has been satisfactorily effective. Since at times C. diphtheriae are imbedded in the tonsillar crypts, tonsillectomy is often performed, but with only partial success. None of the known sulfonamide compounds is effective. Administration of penicillin parenterally is of little value. However according to the latest reports there are encouraging results with the use of penicillin locally in the form of lozenges and sprays. Since this form of administration for diphtheria carriers is still in the experimental stage, it may be of some value to bear in mind that although the reported cases are few in number the successful results may serve to further the study of the effect of penicillin administered locally in the treatment of diphtheria carriers.

During the latter part of February 1946 the Dixon State Hospital experienced a minor outbreak of diphtheria among patients and employees. In spite of the fact that all patients had been immunized with three doses of fluid toxoid, 4 of them contracted diphtheria. One of these, L. S., had received three injections of diphtheria toxoid at a monthly interval after admission to the institution. At the time of her illness only four months had elapsed since she had been immunized. Therefore she was not given a Schick test. The other 3 patients had been immunized four or five years before. When they were given a Schick test six months after immunization the reaction was negative. Because the institution was understaffed during the war, Schick tests had not been performed on the patients routinely since 1941 and 1942, so that the status of immunity to diphtheria could not be determined.

---

[1] Rosenau, M. J.: Preventive Medicine and Hygiene, ed. 6, New York, D. Appleton-Century Company, Inc., 1935, p. 62.

[2] Schick, B., in Brennemann, J.: Practice of Pediatrics, Hagerstown, Md., W. F. Prior Company, Inc., vol. 2, chap. 4, p. 3.

[3] Cited by Schick.[2]

On February 26 L. S., from the tuberculosis ward of the institution, experienced a sore throat, inability to swallow and swelling of the pharynx and the anterior cervical glands. This swelling was more pronounced on the right side, and the patient had a temperature of 101 F. Since she was an uncooperative patient of low grade mentality and since there was enormous cervical swelling it was impossible to examine her throat thoroughly. A diagnosis of abscess of the throat was considered, and swabs were taken and sent to the Illinois State Department of Health, Division of Laboratories. Pending the return of the laboratory report, the patient was given 20,000 units of penicillin intramuscularly every three hours, but she did not respond well to this treatment. On March 1, three days later, when the laboratory report indicated the presence of diphtheria, the use of penicillin was discontinued. She was treated with antitoxin and responded well.

During the outbreak, 3 additional inmates and 2 attendants whose laboratory reports showed that they had diphtheria were isolated and treated with antitoxin.

On March 11, in order to attempt to locate the source of diphtheria, examination was made of the nose and throat of 125 patients and attendants of the tuberculosis ward for females as well as of all those in the general hospital where L. S. had originally been hospitalized. On March 15 a laboratory report showed that 15 patients, or 11.8 per cent, were diphtheria carriers. All were isolated, but they were not immediately treated. On March 27 the virulence tests indicated that 13 patients were carriers of avirulent organisms. They were released, except for 2 patients who were carriers of virulent C. diphtheriae, and were retained in the Isolation Hospital for treatment. They were given penicillin lozenges of 1,000 units each, administered every two hours for six days. Each lozenge lasted for about two hours when held under the tongue. This frequent administration was needed to retain a continuous flow of the penicillin on the mucous membrane.

A third patient, M. B., was found to be a carrier of virulent C. diphtheriae and was used as a control.

The effect of penicillin on carriers of virulent diphtheria was tested one day after the treatment was terminated and also a week later. On April 15 and at subsequent twenty-four hour intervals nose and throat cultures were taken on all 3 patients. The culture of material from the 2 treated patients was negative, while that from the control patient was positive. On April 22 cultures were taken again. The laboratory report showed that the control patient was still a carrier of virulent diphtheria, both the throat and the nose being involved. Cultures of material from the 2 treated patients were still negative, and they were released from the Isolation Hospital.

At the beginning of June a fourth patient, L. T., was admitted to the Isolation Hospital as a carrier of virulent diphtheria. This patient and our previous control patient, M. B. were treated. Since the latter was a carrier of nasal and pharyngeal diphtheria, she was treated with 2 cc. of penicillin solution containing 10,000 units per cubic centimeter, administered by spraying with an atomizer every two hours for six days. Since the new patient, L. T., was a carrier of pharyngeal diphtheria she was treated with penicillin lozenges every two hours for six days. Here again the effectiveness of the drug was tested as before.

On Sept. 29, 1946, about six months later, nose and throat cultures were taken on all 4 carriers treated with penicillin lozenges and spray. On April 4, 1947, cultures of material from the nose and throat were again made, and they were negative.

COMMENT

As a result of this survey it was found that the majority of patients, 13 of 15, were carriers of avirulent diphtheria and only 2 were carriers of virulent C. diphtheriae. Unlike the work of Berman and Spitz,[4] Skinner[5] and Kocher and Siemsen,[6] this study was limited to patients who were carriers of virulent C. diphtheriae. The administration was not by the usual intramuscular route but locally by means of lozenges placed under the tongue or by spray. This was found to be more effective for diphtheria carriers because it seems that the lines of attack were directed to the affected areas, namely, the pharyngeal and nasal mucous membranes. It is believed that for acute cases as well as for the carrier state the parenteral route in the administration of penicillin was of little value. In the acute cases the object is to neutralize the toxin liberated from the body of the C. diphtheriae, which grows on mucous membranes of the nose and throat. The antitoxin then is the best weapon for combating diphtheria. Penicillin is considered a poor detoxifying agent.

In the carrier state C. diphtheriae seldom penetrate the underlying tissue of the mucous membrane as do hemolytic streptococci, but C. diphtheriae remain on the surface of the nose and throat, not affected by penicillin administered parenterally. Furthermore, the carrier has a high degree of immunity because of a high level of antitoxin in the blood. Therefore the carrier state may be compared to a symbiotic state in which the parasite and the host live peacefully together. In order to obtain a direct effect on the habitat of C. diphtheriae and affect their power of multiplication, penicillin must be given locally and more frequently.

Fleming,[7] Ercoli,[8] Abraham and others[9] and Chain and his colleagues[10] demonstrated that the C. diphtheriae is susceptible to penicillin in vitro. It is therefore necessary to bring the drug in direct contact with the organism for better results. Chain and his group demonstrated for the first time that penicillin could be used as a chemotherapeutic agent for diphtheria. Skinner,[5] Berman and Spitz,[4] Karelitz and others,[11] Bagnall and Bain[12] and Thrift[13] used intramuscular injections of penicillin in acute cases of diphtheria as well as in the treatment of carriers in the army and navy, but the treatment had little success. Thrift and Karelitz used penicillin locally in the form of sprays and nose drops every two hours, but the solution of 1,000 units of penicillin per cubic centimeter was not adequate. It is preferable to use 10,000 units of penicillin per cubic centimeter. Kocher and Siemsen[6] used

---

4. Berman, B. B., and Spitz, S. H.: Treatment of Diphtheria Carriers with Penicillin, U. S. Army M. Dept. **4**:87, 1945.

5. Skinner, J. W.: Treatment of Patients with Repeated Positive Throat Cultures, U. S. Nav. M. Bul. **45**:264, 1945.

6. Kocher, R. A., and Siemsen, W.: Diphtheria Carriers Treated with Penicillin, Ann. Int. Med. **24**:883, 1946.

7. Fleming, A.: The Anti-Bacterial Action of Cultures of Penicillin with Special Reference to Their Use, Brit. J. Exper. Path. **10**:226, 1929; The Specific Anti-Bacterial Properties of Penicillin, J. Path. & Bact. **35**:831, 1932; A Simple Method of Using Penicillin, Brit. M. J. **1**:547, 1942.

8. Ercoli, N.; Lewis, M. D., and Moench, L. J.: The Anti-Bacterial Activity of Penicillin, J. Pharmacol. & Exper. Therap. **84**:120, 1945.

9. Abraham, E. P., and others: Further Observations on Penicillin, Lancet **2**:177, 1941.

10. Chain, E., and others: Penicillin as a Chemotherapeutic Agent, Lancet **2**:226, 1940.

11. Karelitz, S.; Wasserman, L. R., and Molochek, R.: Penicillin in Treatment of Diphtheria Carriers, J. Pediat. **30**:18, 1947.

12. Bagnall, A. W., and Bain, A. F.: Penicillin Carrier Stage of Fauceal Diphtheria, Proc. Conf. Army Phys. Central Mediterranean Forces, 1945, p. 107.

13. Thrift, G. M.: Persistent Nasal Carrier Treated with Penicillin, Mediterranean Bull. M. Theat. Op. **3**:19, 1945.

the drug both intramuscularly and in the form of lozenges and sprays. Of 31 carriers treated, the condition cleared up promptly in 74 per cent. Cultures were consistently negative. Unfortunately they did not distinguish between carriers of virulent diphtheria and carriers of the avirulent type.

When penicillin was used locally in the form of lozenges and spray, it was found in this limited study to be successful in the treatment of carriers of virulent diphtheria within one week, and the patients remained free from diphtheria even a year after the study was made.

SUMMARY

1. Penicillin is a powerful drug even against diphtheria when it is applied locally, repeatedly and in adequate concentration.

2. Four carriers of virulent diphtheria were successfully treated, 3 with penicillin lozenges and 1 with penicillin spray,

MEDICAL GROUP PRACTICE IN THE UNITED STATES

IV. Organization and Administrative Practices

MARCUS S. GOLDSTEIN, Ph.D.
Public Health Administrator, U. S. Public Health Service
Washington, D. C.

From the Division of Public Health Methods, U. S. Public Health Service.

The present article on medical groups, fourth in a series which will attempt to examine the various facets of group practice in the United States,[1] considers forms of organization and administrative practices in a number of medical groups throughout the country. A discussion of this phase of group practice (ownership of physical assets, distribution of administrative functions, mode of distribution of income in the groups and the like, should be of direct and practical concern to those who contemplate forming a medical group as well as to the groups already established and desirous of profiting from the experience of other groups. Also, an appraisal of current trends in group organization and administration would seem a matter of importance in the whole picture of medical economics in general. It is for these reasons that a cross section of conditions in existing groups is here presented.

PREVIOUS STUDIES

Rorem's study of 55 private group clinics in 1930[2] contains much pertinent matter on organization and administration at that time, the data being obtained by a mailed questionnaire to the groups involved. In the two reports on group practice by the Bureau of Medical Economics of the American Medical Association, first in 1933[3] and later in 1940,[4] data on organization and administration in medical groups were presented and discussed; these data were based on the response to questionnaires sent to secretaries of county medical societies in the earlier work, and to all listed medical groups in the later paper. A comprehensive treatment of the subject by Clark and Clark[5] appeared in 1941, on the basis of the published literature and their own studies of fifteen medical organizations. Data on types of organization of groups for medical practice, ascertained by questionnaires to medical groups throughout the country, were contained in a recent report by Hunt and Goldstein.[1c]

The foregoing are the larger studies in which the subject has received more or less quantitative attention. For other items in which organization and administration in medical groups may have received some attention, reference may be made to the literature on medical groups listed by Hunt[1a] and recent articles in the journal *Medical Economics.*[6]

PRESENT MATERIAL

One hundred and two medical groups are represented in the present sample, although not with regard to every item discussed. No sampling plan was employed in locating the groups. A member of the survey staff visited most of the known groups within a feasible distance of the main routes of his travel in twenty-one states. The sample is 28 per cent of all the known medical groups in the country as of mid 1946[1c] and varies from the latter in (1) a higher proportion of groups from the West South Central region and a lower representation of the Mountain and Pacific states, and (2) a greater proportion of large groups (36 per cent as compared with 20 per cent). As regards form of group organization (for practice of medicine), the present sample is virtually identical in relative representation of the several types noted in table 1.

The material is distinctive in that it is based on personal interviews rather than mailed questionnaires. Eighteen of the groups were studied intensively, a representative of the U. S. Public Health Service remaining about three weeks at each place studied; the other groups were visited briefly by a medical officer of the Service, as has been noted.[7] Naturally more information could be obtained at the former, and these will be dealt with in greater detail. It may be noted that the data refer to groups in practice during 1946-1947, and thus information on organization and administration is brought virtually up to date.

A word should perhaps be said about application of the definition of a medical group to the groups considered in the present report. The concept of a medical group has been discussed elsewhere[1a] the definition adopted in this study may be summarized as a formal association of 3 or more physicians providing services in more than one medical field or specialty, with income from medical practice pooled and redistributed to the members according to some prearranged plan. As is usual in social phenomena, observed conditions seldom fit a given definition precisely in every instance, the present series of medical groups ranging all the way from what might be considered ideal conformity with the definition to borderline conformity or even, strictly speaking, nonconformity so far as pooling and redistribution of income are involved. The latter types of groups are few in number and have been included because of "group" characteristics in other respects.

The materials on which the present study was based were collected by Miss Ruth Wadman and Dr. John R. Hague, largely under the direction of Dr. G. Halsey Hunt. Dr. Antonio Ciocco made most helpful criticisms and suggestions.

[1] (*a*) Hunt, G. H.: Medical Group Practice in the United States: I. Introduction, New England J. Med. **237**: 71-77 (July 17) 1947. (*b*) Hunt, G. H., and Goldstein, M. S.: Medical Group Practice in the United States: II. Survey of Five Groups in New England and the Middle Atlantic States, New England J. Med. **237**: 719-731 (Nov. 13) 1947; (*c*) Medical Group Practice in the United States: III. Report of a Questionnaire Survey of All Listed Groups, 1946, J. A. M. A. **135**: 904-909 (Dec. 6) 1947.

[2] Rorem, C. R.: Private Group Clinics: The Administrative and Economic Aspects of Group Medical Practice, as Represented in the Policies and Procedures of Fifty-Five Private Associations of Medical Practitioners, Publication 8, Committee on the Costs of Medical Care, Washington, D. C., 1931

[3] Private Group Practice, Bureau of Medical Economics, American Medical Association, J. A. M. A. **100**: 1605-1608 (May 20); 1693-1699 (May 27); 1773-1778 (June 3) 1933.

[4] Group Medical Practice, Bureau of Medical Economics, Chicago, American Medical Association, 1940.

[5] Clark, D. A., and Clark, K. G.: Organization and Administration of Group Medical Practice, Joint Committee of the Twentieth Century Fund and the Good Will Fund; and Medical Administration Service, Inc., Boston. Edward A. Filene Good Will Fund, 1941.

[6] McClusky, K.: How Groups Split Their Income, M. Econom. **24**: 125, 1947.

[7] Generous cooperation was afforded by these medical groups, especially the ones in which the intensive studies were conducted.

FORM OF ORGANIZATION

Table 1 gives the number of groups utilizing the specified forms of group organization for ownership of physical assets and the practice of medicine, respectively. A partnership of the physicians (often with additional employed physicians) is by far the most common form of organization for the practice of medicine. Ownership of physical assets is also vested in a partnership arrangement among the physicians in nearly half the total number of groups. Of the 84 groups organized as partnerships for the practice of medicine,[8] 30 per cent were incorporated for the ownership of physical assets.[9] The assets of 9 groups were owned by a single physician, although 2 of these groups were partnerships with reference to distribution or share of income.

TABLE 1.—*Ownership of Physical Assets in Medical Groups in Relation to Form of Organization for Practice of Medicine*

		Type of Organization for Practice of Medicine					
					All Physicians Employed by		
Ownership of Physical Assets	Total Groups	Partners Plus Employed	Partners Only	Single Owner Plus Employed	Hospital	Consumers	Industry
				Number of Groups			
Total groups	102	57	27	8	4	3	3
Partners of practitioners	50	30	20	..	..	..	..
Corporation*	26	20	5	..	1	..	..
	9	1	1	7	..	..	..
	3	..	..	..	..	3	..
	3	..	..	..	..	..	3
Nonprofit voluntary hospital or foundation	3	1	..	..	2	..	..
Unknown	8	5	1	1	1	..	..

* This category includes seventeen corporations comprising practitioners only and nine corporations comprising practitioners and nonpractitioners.

Organization for ownership of group assets appears to vary according to size of group.[10] Thus, of the total 26 groups listed as incorporated for this purpose, 3 were small, 10 were medium and 13 were large. The groups sponsored by a nonprofit voluntary hospital or foundation were all large, with 11 or more physicians on their staffs; the "single owner" groups, on the other hand, tended to be small, only 3 of the 9 groups in this category having as many as 6 to 10 physicians.

ADMINISTRATION

The various aspects of administration in medical groups are considered herewith, including considerations such as senior and junior status of partners, professional direction, business management, mode of distribution of income, and the like. Figures 1 and 2 provide a schematic presentation of two characteristic setups in partnership groups.

Authority in Groups.—Authority in a group largely depends on the form of organization of the group. In partnership groups the final authority in matters of policy, professional and business, usually rests with all of the partners collectively or with the senior partners in groups having a senior and junior partnership arrangement. In 14 of 50 groups, an executive committee of several of the partners, or a medical director, seemed to exercise the ultimate authority, yet even in most of these groups all of the partners were consulted in matters of common concern.

Although the final authority in nonprofit voluntary hospital, industrial or consumer cooperative groups may rest with a board of trustees or directors, the board generally relies on the judgment and decisions of some one directly associated with the group. Thus, in the groups intensively studied, full administrative authority was vested in the medical director in the nonprofit and consumer groups, and in the business manager in an industrial group. Available information on groups owned by individual physicians was limited, but authority in such groups, which are usually small in size, presumably rests with the owner, especially in financial matters.

Senior and Junior Partners.—The group partnership is at times composed of senior and junior members. There were 6 such groups in the 14 partnerships intensively studied. The junior partners may own a smaller relative part of the physical assets or none at all, and receive a smaller share of the net income. Some groups allow the junior partners an increasing share of ownership in, and income from, the group in the course of time, while in other groups the junior partners attain senior status and all the perquisites thereof after a set period. In administrative matters the junior partners generally have a voice in the discussion of policy, especially in professional matters, but have no vote. Organizationally, the senior-junior setup permits an increasing measure of participation and responsibility in the affairs of the group by the younger men.

Some groups first employ physicians for a probationary period, at the end of which the employed man either becomes a junior partner (in some instances a full partner) or leaves the group. Appointment of a new member in partnership groups generally requires the agreement of all the partners, although in some cases (10 of 52 groups) the engagement of a new member is left to the medical director, an executive committee, heads of departments or a majority vote of the partners.

The Medical Director.—Most of the groups interviewed had a medical director.[11] In partnership groups a member of the staff may be elected to the office by the partners or, particularly in the smaller groups, a partner may assume the role by virtue of seniority in the group.

The authority and functions of the medical director vary from group to group, depending more or less on the type, size and history of the group. As has been noted, the medical director of the smaller partnership group tends to be the oldest member, usually one of the founders. He is likely to be responsible for coordination of professional and business matters, supervision of the business manager, and in general for the efficient management of the group. The medical director of the large partnership groups, on the other hand, tends to be a presiding chairman at partnership or executive committee meetings, occasionally with supervisory powers over the younger men in the group, and generally with much less authority than is the case in the smaller groups.

---

[8] The incidence of partnerships among medical groups noted in the present paper, namely, 82 per cent, has apparently remained unchanged since 1939, when 80 per cent of the groups noted at that time were found to be partnerships.[4] Of the medical groups counted in 1932, 60 per cent were partnerships.[3]

[9] Considered as partnerships for the practice of medicine are three incorporated groups in which the physicians, comprising the corporation, placed themselves on an employed salary basis.

[10] Size of group, unless otherwise specified, will have reference to full time physicians, thus: small group, three to five physicians; medium group, six to ten physicians; large group, eleven or more physicians. On occasion, the first two categories will be combined and referred to as smaller groups.

[11] According to a questionnaire survey of medical groups in 1946, 59 per cent of three hundred and sixty-eight groups had a medical director.[12]

The Executive Committee.—The executive committee is primarily an organizational form of the large group. All of the 13 partnerships with an executive committee, of 33 groups for which information on this question was available, were either medium or large in size, usually the latter. The executive committee generally takes the place of the medical director, or, if this office is retained, it is shorn of the powers and functions noted. This pattern does not refer to hospital groups in which an executive committee seems to be merely an advisory body to the medical director.

The vesting of administrative powers in an executive committee does not mean that the partners as a group are not consulted or have no voice in policy; the contrary is usually the case.

The composition of the executive committee may consist of the active founding partners only, or more often, the former plus several other senior partners elected at regular intervals by the whole partnership.

Other Committees.—Occasionally a group may have a number of committees of the partners, instead of an executive committee, each in charge of a different phase of business and professional activities. Some committees are elected by the partnership; others are appointed by a presiding chairman or other comparable figure in the group.

The Business Manager.—Some 79 per cent of 368 medical groups throughout the country in 1946, including both small and large groups, stated that they had a business manager. The concept of a business manager in a medical group apparently runs the gamut from secretary or bookkeeper to the person professionally trained in medical economics and administration. The numerical separation of groups with regard to qualification of the business manager was not feasible. In any case, it may be said that the office is generally held by a layman employed by the group; only occasionally is the business manager a physician or dentist of the staff.

The authority and functions of the business manager vary considerably from group to group, although only rarely does he have any authority in professional matters. More commonly, the role of the business manager is to work under and with the medical director or executive committee in the business administration of the group. He employs and supervises the office personnel and is responsible for collection of fees and a general accounting of receipts and expenditures. He may adjust fees in individual cases when this is deemed necessary. He is a member of committees, although usually with no vote therein, and generally participates in the coordination of business and professional affairs.

Opinions concerning the role of a business manager in group practice were obtained from 163 physicians in the 18 groups studied intensively. Some 65 per cent of the physicians felt that the business manager should not be a partner in the partnership group. A majority stated that the business manager should have no active participation in professional matters; some 42 per cent felt that he should have no vote even in business matters. The physicians of groups having a business manager generally were satisfied with his powers, only 5 per cent stating that the powers of their business manager were excessive.

In brief, the sentiment of group physicians with respect to activities of the business manager would seem to reflect a highly cautious attitude as regards delegation of powers to the business manager. The authority of the business manager in most of the groups studied intensively was in fact definitely circumscribed, particularly so as regards professional matters.

Six physicians in a group would justify the services of a business manager, according to the median response of the 163 physicians queried on this question.

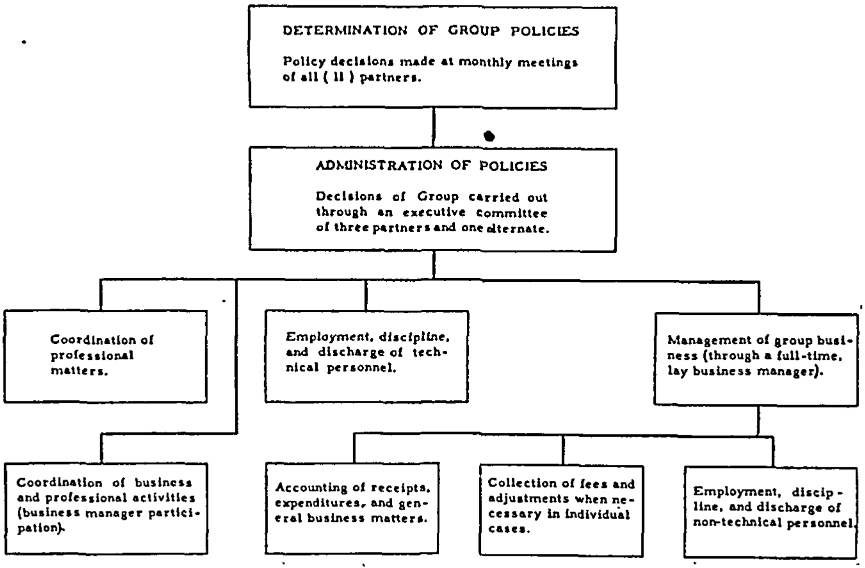

DETERMINATION OF GROUP POLICIES
Policy decisions made at monthly meetings of all (11) partners.
ADMINISTRATION OF POLICIES
Decisions of Group carried out through an executive committee of three partners and one alternate.
Coordination of professional matters.
Employment, discipline, and discharge of technical personnel.
Management of group business (through a full-time, lay business manager).
Coordination of business and professional activities (business manager participation).
Accounting of receipts, expenditures, and general business matters.
Collection of fees and adjustments when necessary in individual cases.
Employment, discipline, and discharge of non-technical personnel.

Fig. 1.—A schematic summary of the functional administration in group A, a characteristic partnership group.

Departmentalization.—Some groups, especially among the larger ones, are organized on a departmental basis. That is, there may be departments of surgery, internal medicine, etc., and even of subspecialties of some of these, usually with several physicians in each department. The division of group physicians in departments is probably a matter of professional convenience in dealing with patients, although the powers and functions of departments may vary considerably in different groups. Even when more or less authority is vested in the department head, the department as such still forms an integral part of the group in general administration.

DISTRIBUTION OF INCOME

Distribution of Income in Groups.—The main mediums of distributing income in medical groups are by share of net, by salary or by a combination of the two. Table 2 shows the mode of income distribution among 102 medical groups. Of the 84 partnership groups, 74 per cent shared their pooled net income among the partners. A fixed salary was the mode of payment to the employed men in most of the 57 partnership groups which employed physicians, although in about 30 per cent of these groups the employed physicians received a share of the net (or a bonus) in addition to salary. Seven of the 102 groups had partners or employed members receiving a percentage of their own intake based on collections or bookings.

TABLE 2.—*Mode of Distribution of Income to Physicians in One Hundred and Two, Medical Groups*

	Composition of Groups			
	Partnership Groups		Employed Physicians	
Mode of Distribution	Partners	Employed Physicians	Single Owner Groups	All Employed Groups *
	Number of Groups			
Total groups	84	57	8	10
Share of pooled net	62	..	..	..
Salary plus share of net †	12	17	4	2
Fixed salary	..	27	1	8
Percentage of own collections	3	2	2	..
No information	7	11	1	..

* This category includes nonprofit voluntary hospital groups, consumer cooperative and industrial groups.

† The share of net in some instances was in the form of a bonus rather than, strictly speaking, a share in the sense of a prearranged percentage of net.

The report of the Bureau of Medical Economics in 1933 did not find any correlation between method of distribution of income and size of group. A suggestion f such a relationship at the present time may be noted in table 3, especially with reference to employed physicians and the fixed salary arrangement, 62 per cent of the large groups in contrast to 35 per cent of the smaller ones providing a fixed salary to their employed staff members. The few groups with physicians receiving a percentage of their own collections or bookings were almost all in the smaller group category.

Income generally varied among members of the groups, the share or salary usually depending on professional value of the physician to the group, especially in terms of experience and competence, as well as on earning capacity of the individual; e.g., book value of work done by the physician. This was the case in 45 of 74 partnership groups for which information was available; in 12 of the groups the partners of the same class received an equal share of the net proceeds, and in 17 groups the income was divided equally among all the partners.

TABLE 3.—*Mode of Distribution of Income in Medical Groups by Size of Group*

	Partners in		Employed Physicians in	
Mode of Distribution	Smaller Groups *	Large Groups	Smaller Groups	Large Groups
Total groups	54	30	40	35
Share of pooled net	38	24	..	..
Salary plus share of net	7	5	14	9
Fixed salary	..	..	14	22
Percentage of own collections	3	..	3	1
No information	6	1	9	3

* Smaller groups refer to 3 to 10 physicians; large groups to 11 or more physicians.

The sentiment of 163 physicians in 15 medical groups was sampled on questions of distribution of income. Most of the men stated that full partners should receive a salary plus share of net rather than a straight share of net income. Almost half of them felt that even the employed physicians in medical groups should receive a bonus or share of the net in addition to a fixed salary, a feeling expressed more frequently among the younger than the older physicians (60 per cent compared with 38 per cent), perhaps because a relatively larger number of the younger men were in the employed status.

In brief, as represented by this sample of physicians, there seems to be a tendency for physicians in group practice today to want some definitely assured income; that is, a salary in addition to a share of the net proceeds, instead of merely a percentage of the pooled net.

Partners may receive an equal or a varying share of the net proceeds, and the question was asked as to which method was preferred. Half of the physicians stated that there should be variation in share of net income among the partners; 37 per cent of them, on the other hand, noted that income should be distributed equally to members of each class. It is of some interest that relatively more of the physicians of the smaller groups than those in the large ones expressed the desire for equality of income distribution (54 per cent versus 29 per cent).

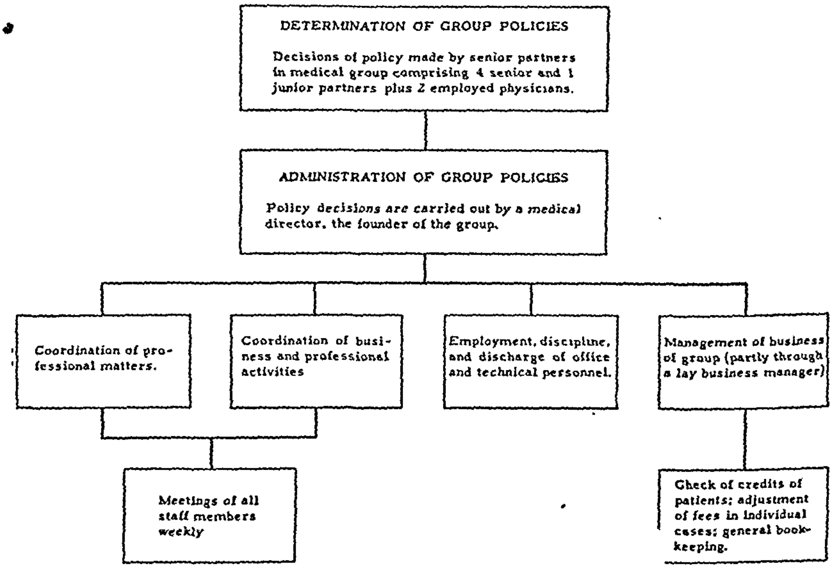

DETERMINATION OF GROUP POLICIES
Decisions of policy made by senior partners in medical group comprising 4 senior and 1 junior partners plus 2 employed physicians.
ADMINISTRATION OF GROUP POLICIES
Policy decisions are carried out by a medical director, the founder of the group.
Coordination of professional matters.
Coordination of business and professional activities
Employment, discipline, and discharge of office and technical personnel.
Management of business of group (partly through a lay business manager)
Meetings of all staff members weekly
Check of credits of patients; adjustment of fees in individual cases; general bookkeeping.

Fig. 2.—A schematic summary of the functional administration in group B, a characteristic partnership group.

The physicians were also requested to check off on a list those factors which they felt should be considered in determining the income, whether it be by salary or share, of a physician in group practice. The physician was not asked his order of choice in the several listed factors. The first five criteria for most of the men were competence, professional value to the group, length of time with the group, experience and training, all of these considerations really being highly interrelated. It is noteworthy that nearly a fourth of the men felt that book value of work done by the individual physician should be one of the factors to be considered in determining salary or share of net income.

The criteria for determining income as stated by the physicians seem much like those mentioned by the medical director or comparable authority as being in actual operation in the respective groups interviewed, and it is not unlikely that the opinions of the individual physicians are largely a reflection of the conditions obtaining in their own groups.

COMMENT

An attempt has been made in the preceding sections to describe existing conditions rather than to pass judgment as to merit or to suggest any ideal mode of group organization. Presumably an approach to the "ideal" would be that type of organization which would assure a harmonious, efficient group, provide an equitable distribution of income, maintain high standards of medical care and in general be conducive to successful survival. It is hardly likely that only one kind of organization or administration would achieve the desired results; the contrary would be expected in view of circumstances peculiar to each group. Also, group practice even on the organizational level is seldom a static phenomenon: groups change in size and composition in the course of time, as do the circumstances surrounding the group, and readjustments are a common occurrence. Central tendencies can be noted, however, and a periodic check of these common characteristics as well as the variations therefrom would seem of manifest importance for any intelligent appraisal of the dynamics of medical group practice.

SUMMARY

A preliminary discussion of questions pertaining to organization for ownership of physical assets, administration and mode of distribution of income in medical groups has been attempted on the basis of interviews of a number of groups.

Most medical groups were found to be partnerships with reference both to practice and ownership, although some 30 per cent of these groups had their holdings incorporated.

The medical director was usually the chief administrative officer of the group, although the larger partnerships tended to have an executive committee take his place in authority and functions. In either case there was usually periodic consultation among the physicians in the group regarding professional and business policies.

Partnership groups often were divided into senior and junior categories, with employed physicians serving a probationary period before achieving partnership status.

Most groups had a lay business manager working under the direction of the medical director or executive committee, exercising greater or less responsibility for administration of the business affairs of the group. An opinion poll of the group physicians concerning the role of a business manager in the group indicated a highly cautious attitude as to delegation of powers to the latter.

Some 74 per cent of the partnership groups shared their pooled income; the employed physicians in partnership groups usually received a fixed salary, many also receiving an additional bonus or even a share of the net income. The division of income within the group was based largely on professional value of the physician to the group as well as his earning capacity. The opinion of group physicians in regard to desirable mode of distribution of income indicated a large sentiment in favor of salary plus share of net for both partners and employed members of the group.

CONGENITAL ABSENCE OF THE VAGINA

VIRGIL S. COUNSELLER, M.D.
Rochester, Minn.

The surgical treatment of congenital absence of the vagina constitutes a most interesting chapter in gynecology. Like the treatment of other anomalies, it has gone through many changes, with successes and failures, and ultimately a method of correction evolves which becomes simple, easy of execution and attended by low mortality and morbidity rates, and which produces a high percentage of good results. There always will be some poor results and even failures in the management of any congenital anomaly by virtue of the defective quality of the tissues with which the surgeon must work.

In this communication I wish to report a group of 76 cases of congenital absence of the vagina, to describe a surgical procedure which I think is adequate and to disclose the results. The patients were seen and treated during the decade ending Dec. 31, 1946. Eight more have been treated during the present year but are not included in this paper. There have been seen, and surgically treated in the clinic, exactly 100 patients, to the present. Patients other than those who are herein reported on were treated by various surgical procedures, in which segments of the intestine or pedicle grafts were utilized.

The incidence of congenital absence of the vagina is not known, but the increasing number of cases of the condition that are being reported causes one to believe that the incidence is much higher than was originally considered. The anomaly was first described in 1572 by Realdus Columbus.[1] Engstadt[2] estimated that vaginal aplasia occurred once in 5,000 births, but Owens[3] reported that only 6 instances of the condition were encountered in more than 500,000 admissions of women to the Charity Hospital in New Orleans, where a fourth of the women admitted were obstetric or gynecologic patients.

EMBRYOLOGIC ASPECTS

There is much controversy among embryologists concerning the development of the vagina. In these various theories partial to total development is said to proceed from (1) the müllerian ducts, (2) the wolffian ducts and (3) the urogenital sinus. In the 8 mm. embryo the müllerian ducts appear as an invagination of the celomic cavity lateral to the upper portion of the wolffian ducts. The caudal portion of the müllerian ducts forms a tube with a solid tip which burrows through the mesenchyma of the urogenital fold, crossing the wolffian ducts anteriorly and at the caudal end of the mesonephron. In the 30 mm. embryo the caudal tips of the müllerian ducts fuse and reach the posterior wall of the urogenital sinus, which is pushed forward, forming the müllerian tubercle. With distal fusion of the müllerian ducts, the uterovaginal canal is formed. The wolffian ducts have kept pace with the müllerian system, but

---

From the Division of Surgery, Mayo Clinic.

Read before the Section on Obstetrics and Gynecology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

[1] Cited by Marshall, H. K.: Formation of Artificial Vagina: Experiences with Three Different Corrective Procedures, West. J. Surg. **52**: 245-255 (June) 1944.

[2] Engstadt, cited by Miller, Willson and Collins.[2a]

[3] Owens, N.: Simplified Method for Formation of an Artificial Vagina by Split Skin Graft: Report of Case, Surgery **12**: 139-150 (July) 1942

in the 56 mm. embryo signs of involution begin to appear. At approximately this time there is great intermingling of cells, the urogenital sinus and wolffian and müllerian ducts, and it is in relation to this stage of development that controversy persists as to what group of cells proliferate to predominate in the formation of the vagina. In the 63 mm. embryo the müllerian tubercle gives way to the bilateral sinovaginal bulbs formed by the evagination of the posterior wall of the urogenital sinus. The growing of the sinovaginal bulbs and the transformation of the columnar epithelium to stratified epithelium of the uterovaginal canal (lower portion) merge to form the primitive vaginal plate. The vaginal plate increases in size, and cellular proliferation invades the surrounding mesenchyma. The epithelial activity begins at the caudal end. This proliferation forms a solid vaginal cord. The cells in the center of the solid cord undergo involution and desquamation, thereby forming the vaginal canal which communicates with the cervical canal above and the hymenal foramen below. This latter process appears first in embryos of 150 to 200 mm. in length of trunk (Nagel, 1891[4]).

HISTORICAL DEVELOPMENT

Rectal Transplant.—Sneguireff[5] in 1892 made an incision from the coccyx to the anus and separated the rectum from the coccyx, which was resected. The gut was ligated in two places and divided. The superior segment was sutured to the right of the resected coccyx; the inferior segment was brought down, and its upper end was closed. Two weeks later a second stage was done, in which the perineum was incised and the rectal mucous membrane was sutured to the adjacent parts. In 1910 Popow[1] and, in 1911, Schubert[1] utilized methods for reconstruction similar to those used by Sneguireff.

Ileal Transplant.—Baldwin[6] in 1904 described a method in which the ileum was used as a transplant, but he did not put this method into practice until 1907. He excised a 10 inch (25 cm.) loop of ileum and reunited the bowel by end to end anastomosis. He then tunneled between bladder and rectum, pulled the middle of the excised loop downward, attaching the upper end of one loop around the cervix, and closed the end of the other loop; the abdomen was then closed. With the patient in the lithotomy position and the loop of bowel still held by a forceps, the bowel was opened and cleansed, each limb was packed with iodoform gauze, and the edges of the bowel were attached to the surrounding hymenal margins. After two weeks a clamp was placed on the double barrel, so that the two loops of bowel were converted into one canal. In 1910, Mori[7] modified Baldwin's procedure by using only one loop of bowel, which was sutured to the vaginal introitus.

Labial Grafts.—Jewett[8] in 1904 first utilized labial grafts, but Graves,[9] in 1908, was the one who brought this procedure into favor, by using two labial flaps and two thigh flaps over a glass form. When the skin pouch was nearly completed, the glass form was removed and the flaps were invaginated and sutured to the depth of the vault. Davis and Cron[10] modified Graves' technic by using labial flaps entirely, and made their original perineal incision vertically rather than transversely. Falls,[11] in 1940, cut a disk 2 to 3 cm. in diameter around the introitus; the edges were then undercut and the disk was pushed back by blunt dissection. Four skin flaps from the vulval opening were taken, and their free ends were sewed to the edges of the disk. This skin-lined cavity was packed with gauze daily, and moderate pressure was maintained until healing was complete.

Thigh Graft.—Among the first surgeons to use pedicle grafts from the thigh was Beck,[12] in 1900. His method was a combined abdominoperineal extraperitoneal approach to the vaginal area, in which he placed a tube graft made from pedicle flaps taken from the thigh. Frank and Geist[13] in 1927 modified this method considerably by means of a multiple stage procedure. First, a tube graft was constructed from the thigh with the skin side out, both ends of the tube being left attached to the thigh; later, the distal end was severed and the graft was cut longitudinally and placed over a mold or speculum, with the skin inside. The rectovaginal space was opened and the mold, covered with skin graft, was inserted into the new tract. Eight days later the proximal end was severed from the thigh and sutured to the margins of the vulva. Grad[14] in 1932 introduced a similar method, but did not use a mold or speculum until the graft had been placed in the new vaginal space.

Free Skin Grafts.—Constructing a vagina by means of free skin grafts was first reported in 1872 by Heppner,[15] but it did not attract much attention. However, in 1915 Flynn,[16] after blunt perineal dissection, used a free skin graft from the external genitalia to graft the new tract. This was followed by repeated dilation until complete epithelialization took place. Good results are reported to follow this operation. Kirschner and Wagner,[17] in 1930, reported that they used a rubber sponge prosthesis, covered with Thiersch grafts, which was then placed in the new vaginal cavity. When the prosthesis was later removed, dilatation of the vagina was instituted. McIndoe and Banister,[18] in 1938, reported 1 case in which they had successfully used a Thiersch graft over a vulcanite mold, which was left in place three to six months. They stressed the importance of long-continued use of the mold to prevent contracture of the new tract. Bonney and McIndoe[19] described a unique constructive operation carried out for an 18 year old woman. Abdominal surgical exploration revealed a double uterus with no cervix. One month later the vaginal space was opened and the two uterine bodies were joined over a tube which was covered with a skin graft. A normal vagina was obtained. The authors said that the patient then menstruated regularly. They said that they each had performed about thirty such operations; using a skin-covered mold. In 1944 I reported 35 cases in which I had used this method.[20]

---

[4] Nagel, W., cited by Keibel, F., and Mall, F. P.: Manual of Human Embryology, Philadelphia, J. B. Lippincott Company, 1912, vol. 2, pp. 921-924.

[5] Sneguireff, W. F., cited by Baldwin.[6]

[6] Baldwin, J. F.: The Formation of an Artificial Vagina by Intestinal Transplantation, Ann. Surg. **40:** 398-403 (Sept.) 1904.

[7] Mori, M., cited by Miller, Willson and Collins.[20]

[8] Jewett, cited by Frank, R. T.: Evolution of the Treatment for Absent Vagina. J. Mt. Sinai Hosp. **7:** 259-262 (Jan.-Feb.) 1941.

[9] Graves, W. P.: Gynecology, ed. 1, Philadelphia, W. B. Saunders Company, 1916, pp. 567-570.

[10] Davis, C. H., and Cron, R. S.: Congenital Absence of the Vagina. Report of Two Cases Treated by a Vaginal Plastic Operation, Am. J. Obst. & Gynec. **15:** 196-201 (Feb.) 1928.

[11] Falls, F. H.: Simple Method of Making an Artificial Vagina, Am. J. Obst. & Gynec. **40:** 906-917 (Nov.) 1940.

[12] Beck, C.: A New Method of Colpoplasty in a Case of Entire Absence of the Vagina, Ann. Surg. **32:** 572-574 (Oct.) 1900.

[13] Frank, R. T., and Geist, S. H.: The Formation of an Artificial Vagina by a New Plastic Technic, Am. J. Obst. & Gynec. **14:** 712-718 (Dec.) 1927.

[14] Grad, H.: Technique of Formation of Artificial Vagina, Surg., Gynec. & Obst. **54:** 200-206 (Feb.) 1932.

[15] Heppner, cited by McIndoe and Banister.[18]

[16] Flynn, C. W., and Duckett, J. W.: Plastic Operations for Construction of an Artificial Vagina, Surg., Gynec. & Obst. **62:** 753-756 (April) 1936.

[17] Kirschner, M., and Wagner, G. A., cited by Barrows, D. N.: Kirschner-Wagner Operation for Construction of Artificial Vagina, Am. J. Obst. & Gynec. **31:** 156-158 (Jan.) 1936.

[18] McIndoe, A. H., and Banister, J. B.: Operation for the Cure of Congenital Absence of the Vagina, J. Obst. & Gynaec. Brit. Emp. **45:** 490-494 (June) 1938.

[19] Bonney, V., and McIndoe, A. H.: Unique Constructive Operation, J. Obst. & Gynaec. Brit. Emp. **51:** 24-29 (Feb.) 1944.

Simple Pressure.—Frank,[21] in 1938, devised a method of creating an artificial vagina without operation. He modified this procedure in 1940.[22] Graduated tubes were pushed against the perineum downward and inward half an hour twice a day. The patients came to the office once a week for the first month, and then every other week for two months. After this period of dilatation, Frank said, a permanent vagina was established in which the greatest depth attained was 3½ inches (9 cm.) This would be the ideal method if sufficient depth could be obtained in all cases.

Simple Reconstruction.—This is a method consisting merely of opening the vaginal space and of having it held open by some substance to permit the tract to epithelialize itself without the use of a skin graft. This was first done by Dupuytren [23] in 1817. He used tampons in the dissected tract to maintain patency while epithelialization took place, but the procedure was unsuccessful. Considerable interest in this method was renewed by Wells,[24] who in 1935 packed the vaginal space with petrolatum gauze which was changed every two days. Kanter,[25] in 1935, used iodoform gauze similarly. After several weeks, the patient wore a vaginal dilator for a while. Biopsy showed squamous cell epithelium in the vagina postoperatively. The result in both instances evidently was good. Wharton,[26] in 1938, reported 2 cases in which this method was employed; a mold made of paraffin or balsa wood, covered by a condom, was used. Wharton [26] said in 1 case in which he had used this method ten years prior to the report of 1938 the result was excellent. In the second case the patient did not report to him after one month. This attitude probably meant that she was satisfied with her result.

Wharton [26] at that time expressed the opinion that the epithelium from the urogenital sinus (the lower third part of the vagina) forms a large part of the fetal vagina growing around the müllerian ducts (upper two thirds) and that in both his cases the epithelium arose from the vestibule or rudimentary vagina. In a later report [27] he referred to 12 cases in which the method had been used by seven surgeons, with 8 successes, 3 failures and 1 unknown result. More recently, Wharton [28] has said that he favors use of a Thiersch graft over the mold to hasten epithelialization. He said it decreases the amount of scar formation. He reported 16 cases in which vaginal reconstruction was done at the Johns Hopkins Hospital. Miller, Willson and Collins [29] reported 17 cases of theirs; in 6 of them reconstruction was done without the graft and in 11 the graft was used. These authors thought that superior results were obtained in those cases in which a graft was used, because in such instances the vagina was more soft, pliable and better epithelialized than when a graft was not used.

THE PRESENT STUDY

At the Mayo Clinic we have seen 76 patients with congenital absence of the vagina. For 70 patients the technic of McIndoe was employed, in which a "lucite" mold, covered by a Thiersch skin graft taken from the abdomen or thigh, was used. For 6 patients simple reconstruction was done, in which a "lucite" mold was left in the vaginal tract without a skin graft.

Analysis of Cases.—The age of these patients ranged from 14 to 49 years. Twenty-one were less than 20 years old. Forty-eight were less than 30 years old. Six were less than 40, and 1 was 49 years of age. The last patient whom we treated had undergone a Baldwin operation, performed some years previously, which was a failure. The McIndoe operation was successful. Sixty-six of the patients were single and 10 were married.

Not all the patients were studied for anomalies of the urinary tract, but of those studied, 16 were normal in this respect and 19 had some type of anomaly. Of the 19, 6 had a pelvic kidney, 5 had a solitary kidney, 3 had duplicated ureters or pelves, 2 had pyeloureterectasis, 1 had a malfunctioning kidney, 1 had a solitary fused kidney and 1 previously had undergone nephrectomy for an unknown reason. Four had incomplete development of the uterus and bilateral hematosalpinx and endometriosis. In each instance there was complete absence of the cervix; hence, abdominal hysterectomy was performed. In 1 patient in this group (reported on by Ferris [30]) the cervical canal was opened when the vaginal tract was reconstructed; this was followed by normal menstruation.

RESULTS

Of the 70 patients in whom skin grafts were used, 55 obtained excellent results, although for 2 it was necessary to do a secondary grafting procedure. In 1 of these the graft completely sloughed out during an attack of acute exfoliating dermatitis. For 10 of the patients the result was considered to be fair, since some had granulations which would not epithelialize and produced slight contracture, although 7 of these who are married have said that their sexual relations are entirely normal and satisfactory. In 5 cases the results were considered to be poor or failures; they were due primarily to infection, with incomplete take of grafts, resulting in contracture and stenosis. Three of these patients were uncooperative and refused to wear the mold. Of the 6 patients in whom no graft was used, all have obtained excellent results. The vaginas have completely epithelialized; there are no contractures, and the vaginas are of normal depth and normal mobility. Nineteen patients have been married since their operation; 9 were married before surgical treatment. Hence, 28 of those heard from are married and all, at the time of this report, had normal marital relations. Thirty-two were still single and 16 had not been heard from at the time this paper was written.

---

[20] Counseller, V. S., and Sluder, F. S., Jr.: Treatment for Congenital Absence of the Vagina, S. Clin. North America **24:** 938-942 (Aug.) 1944.

[21] Frank, R T.: The Formation of an Artificial Vagina Without Operation. Am J. Obst. & Gynec. **35:** 1053-1055 (June) 1938.

[22] Frank, R T.: The Formation of an Artificial Vagina Without Operation (Intubation Method), New York State J. Med. **40:** 1669-1670 (Nov. 15) 1940.

[23] Dupuytren, cited by Judian, S.: The Baldwin Operation for the Formation of an Artificial Vagina: Report of Six Cases, Surg., Gynec. & Obst. **44:** 530-539 (April) 1927.

[24] Wells, W F.: A Plastic Operation for Congenital Absence of Vagina, Am. J. Surg. **29:** 253-255 (Aug.) 1935.

[25] Kanter, A. E.: Congenital Absence of the Vagina: A Simplified Operation with the Report of One Case, Am. J. Surg. **30:** 314-316 (Nov.) 1935.

[26] Wharton, L. R.: A Simple Method of Constructing a Vagina: Report of Four Cases, Ann. Surg. **107:** 842-854 (May) 1938.

[27] Wharton, L. R.: Further Experiences in Construction of the Vagina: Report of Twelve Cases, Ann. Surg. **111:** 1010-1020 (June) 1940.

[28] Wharton, L. R.: Difficulties and Accidents Encountered in Construction of the Vagina, Am. J. Obst. & Gynec. **51:** 866-875 (June) 1946.

[29] Miller, N. F.; Willson, J. R., and Collins, J.: The Surgical Correction of Congenital Aplasia of the Vagina: An Evaluation of Operative Procedures, End Result and Functional Activity of the Transplanted Epithelium, Am. J. Obst. & Gynec. **50:** 735-747 (Dec.) 1945.

[30] Ferris, D O.: Personal communication to the author.

COMMENT

Several points of clinical importance concerning patients with congenital absence of the vagina should be stressed. If they do not have abdominal symptoms of menstruation or palpable, painful adnexal masses, there is no need for surgical intervention unless the patient contemplates marriage. The operation will not improve their general health, but if the patient is operated on, she may have a happier outlook on life, knowing that she can be married without subsequent difficulties if the opportunity presents itself. The psychologic attitude and frigid character of a few such patients is such that any idea of their marriage should be discouraged, because the probability of incompatibility and extreme unhappiness is great.

If the patient has a functioning uterus and it is possible to construct a vagina and establish menstruation, as did McIndoe and Banister in their case and Ferris in his case and as was done in a few other cases that have been reported, such an outcome represents the ultimate in success. However, the number of patients in whom this can be done will remain small, because the vast majority of such patients either have no uterus at all or one that has very little functioning endometrium and will require removal to obtain relief of pain. Hematosalpinx and endometriosis probably are associated in such cases. Miller,[31] in a personal communication, said that he had never seen an instance of endometriosis in congenital absence of the uterus and vagina —a pertinent observation in respect to the etiology of endometriosis.

Congenital anomalies of the urinary tract in association with congenital absence of the vagina are of frequent occurrence, so that the upper part of the urinary tract should be investigated prior to any surgical operation to correct the absence of the vagina. When one kidney is ectopic, it usually is in front, or to one side, of the sacrum. In this position it will interfere with the obtaining of proper depth of the vagina, and is likely to be traumatized during sexual relations. Moreover, this ectopic kidney also may be solitary. A fused kidney also may lie in the pelvis. A hydronephrotic kidney in the pelvis has been diagnosed as an ovarian cyst. Removal of such a kidney is not a simple procedure, since it has a fixed position because of the entrance of many anomalous blood vessels at both the upper and lower poles, as well as at the hilus. Anomalous insertion of a ureter or a duplicated ureter into the bladder may result in formation of a ureterovaginal fistula.

The ability of the vaginal tract completely to epithelialize itself without skin graft is of tremendous importance. In enough cases, treatment has been based on this method, with success, to enable one to say that in certain instances a graft is not necessary. The difficulty is to select the patients for whom the grafting procedures should be used. I believe that in those cases in which the vaginal tract can be opened up easily and satisfactorily, without bleeding from the venous plexus on each side near where the uterine vessels ordinarily would enter, and when there is no difficulty in elevating the peritoneum, the grafting procedure probably does not need to be used in the vaginal tract. Where this epithelium comes from, in such an instance, is a debated question, but it probably arises from the lower segment of the vagina and also from some buds of epithelium from remnants of the müllerian ducts. During dissection one of these buds was picked up from beneath the bladder. It was immediately subjected to biopsy, and was found to be squamous epithelium. This epithelialization might be accelerated by administration of estrogenic substances. Ayre[32] took smears from an artificial vagina, in which no graft had been used, and showed the new lining to be reacting in a cyclic manner to ovarian hormones in the same manner as a normal vagina does.

If there is a complete take of a Thiersch graft, it produces an excellent result, provided the mold is worn long enough. Our only difficulty with the Thiersch graft has been that, occasionally, there will be one or more areas in the vagina which are devoid of skin, and it is unlikely that any epithelium will extend from the remaining skin graft to cover the defect. It is usually necessary to regraft these areas. It is of interest, also, to note that granulation rarely occurs in a vagina in which the grafting procedure has not been employed. If, however, granulation does take place in such an instance, the granulations are smaller and are situated in the areas of the bleeding points which occurred during the original dissection.

We believe, therefore, that it is possible to determine at the time the vaginal tract is opened whether or not a skin graft of the Thiersch type will be indicated. If the dissection has been difficult, as frequently is true in a secondary operation, bleeding should be accurately controlled and the tract grafted over a nonirritating mold. If the tract can be easily opened, if there is no bleeding of consequence and if some granular buds of epithelium can be demonstrated, and proved by biopsy, at the reflection of the peritoneum from the base of the bladder, we believe that such a tract will completely epithelialize itself without the need for a graft.

One point to be observed in the subsequent treatment of these patients applies to both methods (that is, use or nonuse of a graft), and that is the "contraction factor." If the factor of contraction in these new vaginal tracts is disregarded, there will be a greater incidence of poor results and failures than if this factor is observed. McIndoe, who is primarily a plastic surgeon, is responsible for pointing this out to us. It is the one point which made the method described by Kirschner and Wagner[17] a successful operation. Hence, I usually refer to this method as the "McIndoe procedure."

McIndoe said that the contraction factor of any canal lined by a Thiersch graft may last three to six months or longer, and that if the mold is removed before this "contraction" disappears, stricture of the new canal will ensue. Most failures or poor results are due to removal of the mold too soon. I have the greatest difficulty in convincing patients and some physicians that the mold must remain in position for at least six months or longer, and that it must be removed only for cleansing purposes or for inspection of the graft. I have had some patients who have worn the mold for two years, during the process of regrafting. In fact, I see no reason why a lightweight mold constructed of a nonirritating substance could not be worn during the entire period of the patient's sexual life, if necessary, to maintain patency. There are other parts of the body where artificial molds and braces are worn as long as the patients concerned live.

---

[31] Miller, N. F.: Personal communication to the author.

[32] Ayre, J. E.: Cyclic Ovarian Changes in Artificial Vaginal Mucosa, Am. J. Obst. & Gynec. 48: 690-695 (Nov.) 1944.

Perivaginal inflammation also contributes to contraction and shortening if the mold is taken out. It may take two to four months before all of the perivaginal and perirectal cellulitis completely subsides. This element of time is variable; it may be more in respect to some patients than to others. The scarring and contraction of a Thiersch graft also vary among different patients.

If the vagina has not been constructed by means of the grafting procedure, a vaginal mold also is required to be worn until the entire tract has been proved by observation and biopsy to be completely epithelialized. This will require a minimum of four months and perhaps longer.

SUMMARY AND CONCLUSIONS

It would seem that a sufficient number of operations for congenital absence of the vagina utilizing the McIndoe principle, with or without a Thiersch graft, have been performed in this country and abroad to permit recommendation of the procedure as probably the best and simplest procedure for correction of this anomaly. There are, it is true, other methods which will give satisfactory results. This particular method produces a vagina which will be normal in depth, diameter and mobility. The risk of the operation is practically nonexistent. In this series there was no death. The morbidity rate will vary according to the amount of pelvic cellulitis which may occur. The operation technically is simple, and consists only in the careful opening of the vaginal space and the use of a skin-covered mold or use of such a mold without the skin, as the case may be. The principle of mechanical prevention of contraction of the new vaginal tract by means of a mold is the basis for success in every one of these operations. The majority of procedures in which portions of intestine or pedicle flaps are utilized are multiple stage operations, excepting that described by Falls,[11] which appears to be a simple and excellent procedure. I rather doubt that the functional effect which is obtained by the McIndoe operation can be attained by any other procedure.

In conclusion, it should be said that most histologic evidence indicates that the normal vagina is formed from the müllerian ducts and the urogenital sinus. If there is no evidence of müllerian ducts or epithelial buds from them, the new vaginal tract had best be constructed by means of a skin graft, particularly if there has been much difficulty in dissection. In other cases, a graft need not be used.

Seventy-six cases are concerned herein. In each case, reconstruction of the vagina was based on the McIndoe principle. In 70 cases the procedure included use of a Thiersch skin graft; in 6 cases operation was performed without use of a skin graft. The decision as to whether the new vaginal tract should be constructed by the use of a graft must be determined at the time of operation.

ABSTRACT OF DISCUSSION

Dr. F. H. Falls, Chicago: Dr. Counseller is to be congratulated on the large number of patients and the great experience with this operation, which many men with considerable gynecologic experience have never done. I have had no experience with Dr. Counseller's operation, because I have been interested in one which I developed some years ago, which uses the principle of the Pettingill graft. In this operation a circular incision is made in the skin of the perineum at the site of the opening of the normal vagina, often represented by a dimple in the perineum. The edges are deeply undercut, and by blunt dissection between the urethra and rectum a cavity is made and the disk countersunk 3 or 4 cm. Four flaps are made from the edges of the surrounding skin about 1 cm wide and left attached at one end. The opposite end of the flap is sewed to the edges of the countersunk disk. The disk makes the vault of the new vagina and the transplanted flaps serve as four areas from which epithelial cells grow out to line the rest of the vaginal tube. In some cases a sufficiently deep vagina can be produced from one operation; if not, the procedure can be repeated by loosening and undercutting the edges of the new vaginal tube and countersinking it, then turning in flaps from the edge of the vulval opening as in the preceding step. The vagina is packed with iodoform gauze for twenty-four hours and plain gauze thereafter. About four or five weeks should elapse between operations. A vaginal plug is used after epithelialization to maintain distance of the vagina and to deepen it by pressure. The operation should be deferred until shortly before marriage. In 1 case failure to recognize the nature of the deformity led to forceful dilation of the urethra in a teen-aged child, with resultant incontinence of urine. Attempts to reconstruct the vesical sphincter and make an artificial vagina at the same time were unsuccessful. These patients frequently complain of pain occurring about once a month and lasting a few days. On examination and even operation no trace of blood can be found in the abdominal or rudimentary uterine cavities to explain the dysmenorrhea. One patient had a prolapse of the vaginal pouch several months after its construction. We cured this defect by taking strips about 5 cm. long from the inner edges of the rectus fascia which were left attached at the pubis, the free edges united forming a loop which was pushed into the opened end of the vaginal pouch and sutured in this position, thus supporting the pouch from the pubis by ligaments composed of rectus fascia.

Dr. Leo Brady, Baltimore: My experience in making vaginas is limited to 6 cases. In each case an entirely different technic was used, and yet satisfactory results were obtained in all, indicating that, if properly used, there are many different ways in which the vagina can be made. The first patient I operated on in 1935, and she was fortunate in having unusually long labia minora. After dissecting out an opening between the urethra and rectum, I used the split labia minora to cover the raw area, as described by Graves. At that time, Wharton's "vaginoform" had not been described, so I made one of plaster and covered it with a rubber condom. Ten years later she remarried and had no difficulty with sexual relations. She had a vagina 8 cm. long, which easily admitted two fingers, indicating that in the occasional case perhaps use of the dilators is unnecessary. The second patient was a woman whose husband refused to permit any operative procedure. I used Frank's nonoperative method. In six months she was able to make a vagina herself, which turned out to be satisfactory. I feel that only in selected cases will this method be successful. In the third case the findings (and this bears out what Dr. Counseller brought out) were different from the first 2 cases because on rectal examination a large, firm mass could be felt in the midline high up in the vagina. After the dissection had been carried up from below for quite a distance and seemed just about to connect the newly-made vagina with what was thought to be the uterus, I became a little worried and made an abdominal incision. I was surprised to find what had been though to be the uterus was the patient's only kidney. After the abdominal incision had been closed, a Wharton "vagino-form" was successfully used. This case convinced me that intravenous pyelograms should be taken before operation on any woman with a congenital gynecologic abnormality. Dr

The antagonistic tetrad of calcium, sodium, magnesium and potassium is said to control brain irritability, but it is somewhat questionable. Additional research is needed at this point. Magnesium is present in the fetal brain in larger amounts than in any other fetal organ. Why? Potassium apparently influences the permeability and the electrical potential of the cell membranes. The role of potassium in relation to neuron *function seems to be that of modifying the reaction of* the receptor to the transmitting agent (Greville[4] 1940).

Copper and zinc are stored in the brain during intrauterine life and increase slowly after birth. The copper content of the liver and of the basal ganglions is much increased in Wilson's disease.

Selenium and tin are deposited in the gray matter from selenious acid with great specificity, but to a still greater extent in the white matter. This was discovered by treating animals intramuscularly with colloidal selenium. Bismuth and arsenic have practically no selection for brain tissue. Inorganic lead tends to be deposited in bone, but its organic compounds such as tetraethyl lead attack nervous tissues with great avidity. Lead does not become relatively harmless in the brain as in bone. Iron shows great variations in amounts and distribution throughout the nervous system.

There is little storage of mercury in the brain, but it tends to accumulate in the liver and kidneys. Do these heavy metals not reach the nervous system, or does the nervous tissue fail to combine with them? This point requires more elucidation.

The iodine content of nervous tissue bears a close relationship to the thyroxin content. The iodine content *of the tuber cinereum and of the hypothalamic region* increases notably when thyroxin is given orally or intravenously. Bromine seems to parallel the mental state in some respects and is reduced in the blood during stages of excitement. The anterior pituitary contains fifteen to thirty times as much bromine per unit of weight as the other organs of the body. What can the reason be for this phenomenon?

CARBOHYDRATES

Carbohydrates are utilized by the brain as the principal source of energy.[5] The reserve stores are small but those present are very stable. The chief substance is glucose, for which the brain is dependent on the blood stream for its supply. It is contained in the brain tissue in about the same percentage as in the blood. The brain is at the mercy of the pancreas and liver and thus at any time may be on an insecure basis; in contrast it stores lipids and proteins in large amounts and parts with them grudgingly. Curiously and paradoxically the brain of diabetic animals metabolizes carbohydrates.

Glucose taken up from the blood by the brain may be stored as glycogen, or glycolyzed and eliminated from the brain as lactate or oxidized to carbon dioxide.

In each reaction the first step is phosphorylation of *glucose to form glucose phosphate.* One great advance during the past few years has been the clarification of the phosphorylating mechanisms in brain metabolism, and another has been the synthesis of glycogen in vitro.[6]

The main mechanism in breakdown of carbohydrates probably occurs through the oxidation of pyruvic acid, as explained by the Szent-Györgyi-Krebs cycle, and recent work supports the view that vitamin B_1 is concerned in the utilization of pyruvate in the tissues.[7]

The brain is unable to utilize glucose directly, but it must be converted into lactic acid. The brain is a powerful producer of lactic acid, and this substance is vital to carbohydrate metabolism, but no complete Meyerhof cycle has been established. Any animal may die with insulin convulsions with sufficient glycogen in its brain if it were only utilizable.

It is unsafe to apply to the brain criteria gained from carbohydrate metabolism studies on other tissues. Brain tissue forms one of the two exceptions to the rule of "normal adult tissue" as regards glycolysis. Both brain and retina resemble malignant neoplasms in respect to their glycolytic quotients.[3]

Creatine—phosphoric acid or "phosphagen" found in muscle has also been detected in the brain. Additional studies are needed here. In peripheral nerves it may act as one source of energy for the impulse.

As far as the fats are concerned, much of the lipid in the brain belongs to the phosphatide or phospholipid group, that is, the "cephalins," "lecithins" and sphingomyelins. Phosphatides are unique as lipids; they are both water soluble and organo-soluble, they are readily oxidized, they are usually unsaturated, their physical properties are such that criteria of purity are difficult of application and thus their separation is rendered most difficult. The function of the phosphatides in the body is unknown, but possibly it is the transportation of the fatty acids. Both increases and decreases in the phosphatide content of the blood have been found in some of the mental diseases. General paresis and other *demyelinizing diseases show a loss of large quantities* from the brain tissue. Traumatic and hemorrhagic conditions of the brain substance cause a rapid mobilization and depletion of this group of substances.

Deposits of sphingomyelin have been studied in connection with Niemann-Pick's disease in which they are excessively deposited; this in itself is an interesting phenomenon. Although sphingomyelin is found in large quantities in the brain, little of importance is yet known of its function, quantitative distribution or chemical structure.

The recent isolation of new phosphatides, constituting the cephalin fraction, is an outstanding contribution to lipid chemistry; also in 1941 Klenk[8] isolated a new glycolipid with a high sugar fraction from the brain of a patient with amaurotic familial idiocy. It has been obtained from a normal brain, where it constituted 10 to 14 per cent of the total cerebrosides obtained. Sperry and Waelsch (1941)[9] have contributed to the field of lipid synthesis, and Randall (1938)[10] reported on the distribution of lipids in the brain tissue.

Cholesterol is a terpene-like secondary alcohol related chemically to vitamin D, steroid hormones, the bile acids, toad skin poison, carcinogenic substances and a number of other substances. It is present in larger amounts in the brain than elsewhere excepting the adrenal cortex, while the cerebrospinal fluid contains exceptionally small amounts.[11] Adequate methods are now available for quantitative determination. By some workers it has been found to be high in the blood serum of dull, quiet patients with dementia precox and in depressions, while others have reported low values.

---

[4] *Greville, G. D.; Jones,* T. S. G., and Hughes, W. F. G.: J. Ment Sc. **86:** 195, 1940.

[5] Gibbs, E. L.; Lennox, W. G.; Nirns, L. F., and Gibbs, F. A. J. Biol. Chem. **144:** 325, 1942.

[6] Cori, G. T., and Cori, C. F.: J. Biol. Chem. **135:** 733, 1940.

[7] Bueding, E.; Wortis, H.; Stern, M., and Esturonne, D.: J. Clin. Investigation **21:** 85, 1942. Peters, R. A.: Chem. & Indust. **59:** 373, 1940.

[8] Klenk, E.: Ztschr. f. physiol. Chem. **268:** 50, 1941.

[9] Sperry, W. M.; Waelsch, H., and Stoyanoff, V. A.: J. Biol. Chem. **135:** 291, 1940. Waelsch, H.; Sperry, W. M., and Stoyanoff, V. A.: ibid. **140:** 885. 1941.

[10] Randall, L. O.: J. Biol. Chem. **12:** 481, 1938.

[11] Plaut, F., and Rudy, H.: Ztschr. f. d. ges. Neurol. u. Psychiat. **146:** 229 and 262, 1933; **148:** 423, 1933.

The fatty acid esters of cholesterol are found in traces at the most, which is unusual, as all other organs contain some amounts of esterified cholesterol. The body can synthesize and also break down cholesterol. Does the store of sterol in the brain accumulate from local synthesis or is it dependent on blood supply?

Cholesterol is involved in the water metabolism of cells, and the central nervous system is susceptible to changes in hydration. Therefore more data are needed on normal as well as on pathologic relationships.

The precursor of vitamin D has its highest content in fetal brains but is rapidly depleted after birth. This in turn is the regulator of the calcium-phosphorus balance. Ergosterol has been found in the brain of an Egyptian mummy by Kind and his co-workers (1929).[12] On radiation this became active as an antirachitic agent. How can so labile a substance exist so long without decomposition? Vitamin A and its precursor carotene are found in the brain, and defects in these substances cause serious alterations in the functions of the nervous system.

The cerebrosides usually do not appear in the brain previous to medullation. Therefore they are probably insulation substances or possibly are concerned with the nutrition of axis cylinders. They are practically limited to cerebral tissue and only in Gaucher's disease (splenohepatomegaly) do they appear in quantity in other organs of the body.

Neutral fats in the form of glycerides of fatty acids are present in very small amounts if at all in brain tissue, and when found in any quantity indicate a pathologic process.

NITROGEN COMPOUNDS

Gjessing (1939[13] and others have worked on the nitrogen metabolism in periodic catatonia and noted phasic changes.

Nonprotein nitrogen has been measured, but controls have not been efficient enough for reliable interpretation. Ammonia is an interesting substance. Its precursor in the brain may be adenylic acid. It must be determined immediately after removal of the sample as its amount changes rapidly. The specimen is dipped in liquid air, which brings all chemical reactions to a halt. Ammonia may then be determined later. This substance may prove eventually to be very important for understanding brain functions.

Creatine and creatinine are among the best known chemically of the nitrogen substances, but little is known of their function in brain tissue. Very little is known about the kinds of proteins in brain tissue, but most of the amino acids found in other tissues are present. Glutathione is present in rather large quantities in normal brains, but pathologic variations have not been studied adequately.

Little is really known about the composition of the colloids of the brain. Reversibility of at least some of the cerebral proteins can probably occur.

Choline esterase is another interesting substance. Its content in the human fetus increases in parallel with the growth of the neuromuscular apparatus (Youngstrom 1941).[14] The exact role of acetylcholine in relation to nervous activity remains a controversial matter. Some workers believe that it is the specific transmitter concerned with nervous activity at all myoneural junctions and synaptical connections in both central and peripheral parts of the nervous system, while others contend that acetylcholine is little else than a by-product of nerve function or metabolism.

Sympathin is the transmitter substance of the postganglionic sympathetic nerves and is now thought to be identical with epinephrine.[15] The chemical action of epinephrine on plain muscle is still not well understood. Moreover in addition to this action epinephrine also mediates the glycogen decomposition in emotional hyperglycemia.

OTHER PROBLEMS

The effects of oxygen deprivation, respiration of isolated neurons and intermediary oxidation systems, the effects of various narcotics and convulsants, and the acid-base balance phenomena are all large fields now commanding attention and remaining to be completed.

A large number of enzymes have been differentiated in brain tissue, but only a few quantitative estimations have been made. The chemistry in this field is involved, and only in recent years have reliable methods been available.

One enzyme carbonic anhydrase has been studied by Ashby[16] (1947) in its quantitative patterns of distribution. This occurs in the central nervous system, in the hemispheres in approximately one tenth of the level found in the blood. Its potentialities for essential activity are numerous because of its ability to regulate p_H. The stimulus for undertaking this study was the reported mental disturbances following the excessive use of the drug sulfanilamide, which has a considerable degree of specificity for its inhibition.

The patterns of content differ considerably among the higher species of animals and in man, but the particular pattern of distribution of carbonic anhydrase found in man and in the Rhesus monkey has not appeared so far in other animals. Therefore it may possibly be a manifestation of evolutionary development peculiar to the primates.

CONCLUSION

It is the consensus that the various parts of the brain differ from one another morphologically, physiologically and chemically, all of which indicates or at least suggests differences in function. Most of these differences have not been clearly defined. In fact they have not been investigated carefully, as yet. The problem is a complex one and must be divided into many parts for solution.

As Irvine H. Page pointed out in his "Chemistry of the Brain" (1937)[17] no other organ lends itself to study with greater facility than the brain, as blood flowing to and from the brain can be collected and studied and the cerebrospinal fluid constitutes another approach which can be utilized for investigation in health and disease. There are at least six possible technics for studying the chemistry of the brain; namely, (1) the investigation of the substances in the blood which contain or may contain nutritive elements, and products of metabolism, drugs or toxic products of disease; (2) the analyses of cerebral tissue obtained at autopsies, operations and as a part of animal experiments; (3) the analyses of spinal, ventricular and cisternal fluid for metabolic products, drugs and toxins; (4) the analyses of the chemical activity in the special regulating centers for sugar metabolism, respiratory functions and other highly developed nuclei; (5) the study of tissue cultures of selected parts of the brain (the so-called explant technic), and (6) the use of isotopes in brain metabolism.

---

[12] Kind, H.; Rosenheim, O., and Webster, A.: Biochem. J. **23**: 166, 1929.

[13] Gjessing, R.: Arch. f. Psychiat. **109**: 525, 1939.

[14] Youngstrom, K. A.: J. Neurophysiol. **4**: 473, 1941.

[15] Gaddum, J. H., and Kwiatkowski, H.: J. Physiol. **94**: 87, 1938.

[16] Ashby, W. M.: J. Nerv. & Ment. Dis. **105**: 107, 1947.

[17] Page, I. H.: Chemistry of the Brain, Springfield, Ill., Charles C Thomas, Publisher, 1937.

While considerable knowledge has accumulated on the chemical constitution of the nervous system as a whole, information on its various morphologic elements, on many of its pathologic states, on the chemical changes occurring in the nerve cells and fibers in various physiologic states and into what form of energy it transforms itself in order to become sensation or consciousness or even in actually generating glandular and muscular reactions, is barely outlined.[18]

Many equally important foci and indications for research have not been mentioned in this account, and most of those included are controversial in many details, which serves to reinforce the sole reason for this appeal for more extensive activity in this promising field.

At first glance much of this may seem to be unrelated to the attainment of the desire that we all have of creating and maintaining healthier personalities; i. e., those free from psychoses and overt criminal tendencies. (You will note that I do not include psychoneuroses here. I would leave psychoneurotic persons as they are if they do not suffer too much. Psychoneurotics do most of our creative work—even some of them are research chemists.) But this whole subject is concerned with the very foundations and structure of behavior, both normal and abnormal.

ABSTRACT OF DISCUSSION

Dr. Harold E. Himwich, Fallston, Md.: We have heard a remarkable review of a large amount of material. I will dwell a little on only one point that Dr. Lewis brought forward, namely, the role of acetylcholine. We know that acetylcholine is connected with the function of the peripheral nervous system and is probably secreted at the terminations of the vagus and other visceral nerves and of motor nerves. Atropine diminishes the influence of acetylcholine, and that is why we give atropine to occlude the effects of the vagus on the heart and on the stomach. Similarly, curare is used to overcome the power of motor nerves on muscle. The influence of acetylcholine on the periphery, though not entirely understood, is nevertheless on a satisfactory practical basis. As far as the brain is concerned, our knowledge of the part played by acetylcholine is less satisfactory, yet there are certain indications which are of aid: Physostigmine, which has been shown to increase the acetylcholine content of the brain, brings on nervous symptoms and in excessive doses produces convulsions and even a fatal terminus. Atropine can cut down the effects of acetylcholine on the brain, an action analogous to that in the peripheral nervous system. Dr. Merritt and later Dr. Foster pointed out that convulsions may be associated with faulty acetylcholine metabolism in the brain, and it is worth while to examine their hypothesis. Recent work shows that an increased concentration of cerebral acetylcholine is associated with convulsions of various types; i. e., those produced artificially by electroshock or by pentamethylenetetrazol ("metrazol"). The next step would be to see whether a faulty acetylcholine metabolism is involved in epilepsy and if so what the precipitating cause is of the changes in acetylcholine. Such a point of view presents a new avenue of attack on epilepsy. Just as we have used drugs to increase or decrease the influence of acetylcholine in the peripheral nervous system, we may be able to use them for the same purposes in the brain. When the etiology involves an excess of acetylcholine atropine may be prescribed and for a deficiency of acetylcholine, physostigmine.

Dr. J. M. Nielsen, Los Angeles: I will mention a few little items that have interested me particularly. One is the condition commonly spoken of as progressive spinal muscular atrophy, a generic term for a series of conditions. Some years ago, Dr. Wexler pointed out that some of these conditions were responsive to treatment, and others have proved not responsive. Since then, it has been shown that in certain conditions of hyperthyroidism we get a clinical condition exactly like progressive spinal muscular atrophy, but one which responds to thyroidectomy. There are other conditions in which the muscles suffer, not like progressive spinal muscular atrophy, but much more like dystrophy. Here are chemical differences that we do not understand, apparently of the same origins, but certainly with specific differences. There is another field in which we have a somewhat similar situation. In subacute combined degeneration of the spinal cord, we know that some of those are due to the effects of microcytic anemia, and in those cases, if it is possible to get the blood cell count up to 6,000,000 (it must be distinctly above normal) we can get a recovery, if the degeneration has not been present for a long time. I do not believe that anything that is dead comes back to life, but there are certainly cases of functional paralysis (that not due to destruction of the tracts, but to disease of the tracts which has not become total), in which one can get complete restoration with proper treatment. There are other cases associated, perhaps, with diabetes, other types of anemia, anemia due to Diphyllobothrium latum, bothriocephalus latus, in which we cannot get restoration. Here again, specific chemical differences are present, and it seems to me that there is a broad field in the simple little sphere of tract degenerations of the spinal cord. Some of these, I think, of course affect the cerebral cortex, but it is the same disease, and if one portion of the nervous central system responds, so does the other. Here is one point that we can really work with, with the hope of getting clinical results.

Dr. Nolan D. C. Lewis, New York: I only want to emphasize that I had to make this very sketchy. I couldn't present all of the leads that are included in the paper, but I should like to leave you with a question to think about as to why the chemistry of the brain has been neglected, while so much has been done on the other organs of the body. Particularly as the brain is accessible to so many technics, and is supposed to be the master tissue of the body. Often that "master tissue" is not even removed at autopsy.

Clinical Notes, Suggestions and New Instruments

USE OF ANTIHISTAMINE DRUGS IN THE TREATMENT FOR TRIGEMINAL NEURALGIA

CHARLES E. HORTON, M.D.
and
ANDREW J. BRENNAN, M.D.
Washington, D. C.

Chronic paroxysmal trigeminal neuralgia has been known since early civilization. According to Grinker,[1] it was first adequately described in 1772 by Fothergill. This condition may affect all three divisions of the fifth cranial nerve; it may affect one branch alone, or it may occur in any combination of branches. The first symptom is paroxysmal pain, with gradually decreasing intermissions between attacks. The pain is severe and is described as sharp and shooting, "red hot" or like electric shocks. There may be sympathetic stimulation during the attacks, such as flushing of the affected side of the face, salivation, lacrimation and dilatation of the pupil. The pain usually continues for several hours, and it is characterized by the fact that at any time it may be exacerbated by the stimulation of a "trigger point." Some writers have noted that the paroxysms occur more frequently in spring and fall.

---

[18] Pighoni, G.: Neurol. Bull. 2: 395, 1919.

"Benadryl" for intravenous injection, prepared by Parke, Davis & Co., was obtained through Dr. Morris Rosenberg.

This paper is published with the permission of the Chief Medical Director, Department of Medicine and Surgery, Veterans Administration, who assumes no responsibility for the opinions expressed or conclusions drawn by us.

[1] Grinker, R. R.: Neurology, ed. 3, Springfield, Ill., Charles C Thomas, Publisher, 1943, p. 355.

Many methods of treatment have been attempted, but none has been satisfactory. Injections of alcohol[2] around the fifth cranial nerve will control the pain for a few months, but, because of anatomic variations and the necessary trauma[3] associated with the procedure, these injections are not desirable or constantly successful. Many surgical procedures[4] have been attempted, but all are destructive, that is, the sensory nerves, or sometimes, accidentally, both sensory and motor nerves, are severed. This produces organic lesions, paralysis and sensory and trophic changes, which occasionally cause psychic trauma in otherwise healthy persons. It must be emphasized, however, that the pain of trigeminal neuralgia is so severe that such destructive operations are welcomed by the patient who otherwise would be doomed to bear terrifying pain. Indeed, it is thought by many authorities to be the most agonizing pain the human body may endure. Massive doses of thiamine hydrochloride have been used in the treatment for this disease, but with little relief. Only one drug has been used to date with some degree of success. Trichloroethylene, inhaled, may give relief to 1 patient in 6. The drug seems to be specific for the sensory endings of the trigeminal nerve. A careful search of the literature has not revealed a reported case of trigeminal neuralgia in which treatment with antihistamine drugs was successful.[5] A report of a case, in which the pain of trigeminal neuralgia was controlled with antihistaminic therapy, follows.

REPORT OF CASE

G. R. M., aged 48 and a married white housewife, was admitted for the fifth time to the Mount Alto Veterans Administration Hospital, because of repeated attacks of trigeminal neuralgia.

Previous History.—The patient had been having facial pain for approximately sixteen years. Her discomfort began in the left side of the upper jaw and at first was rather mild. She associated this with toothache. For several years she had momentary spasms of pain in the left side of her face, but was not particularly bothered by these mild episodes. About ten years ago these attacks of pain became severer. This caused her to seek medical advice at a large clinic, where on two occasions she received injections of alcohol in the left infraorbital nerve. There was relief for five or six months on each of these occasions. About six years ago she received a similar injection at the Mount Alto Veterans Administration Hospital, with only transient relief. Also about six years ago, she experienced a similar type of pain in the right side of the lower jaw. This rapidly became severer than that on the left side. About three years ago a gasserean neurectomy on the right side was attempted at the Mount Alto Veterans Administration Hospital. Following this operation the patient stated that there was no change at all in the pain on the right side of the face and no alteration in sensation on that side; however, she became deaf in her right ear and tinnitus developed, which has persisted to the present. In view of the absence of sensory changes on the right side, the absence of relief of pain and the deafness, it is believed that the right eighth nerve rather than the fifth was interrupted in the surgical procedure. Approximately two years ago, because of the persistence of severe bilateral pain, she was operated on at the large clinic previously mentioned, where a retrogasserean neurectomy on the left side was performed. Following this procedure there was complete relief of pain on the left side. There has been no recurrence up to the present; in addition, the left side of the face has been numb. A few months after this surgical procedure the pain in the right side of the lower jaw became worse, necessitating hospitalization. The patient was treated symptomatically, and during her hospital stay of one hundred and fourteen days the pain almost completely subsided. In the interval between the periods of hospitalization she took phenobarbital, 0.5 grain (0.03 Gm.) three times a day.

Present Illness.—The patient entered the hospital on July 19, 1947. Since her last discharge from this hospital, Sept. 18, 1946, the pain had been less severe. However, she had always noted that her attacks were mild during the winter. Typical attacks seemed to become severer in the spring season. Further questioning brought out the fact that each year with the ripening of the farm crops her pain was greatly intensified. It was of interest to note that the growing season was delayed approximately one month this year. The exacerbation of her neuralgia was delayed an equal length of time. The pain at the time of last admission was on the right side of the face, involving the lower jaw and the infraorbital region. It had become exaggerated in intensity about three weeks prior to admission. She described two different types of jabbing pain. One of these originated under the right lip and radiated laterally; this was severe but bearable. In the mornings there was in addition severe jabbing pain, which she described as "like two electric wires shocking," which seemed to fan out over the right side of the upper and lower jaws. The pain had been constant. The attacks were precipitated at almost any time by chewing, gentle pressure on the right angle of her lips, brushing her teeth or stroking her right eye. She had not brushed her teeth or chewed her food for the past year and a half. During this time she was accustomed to chopping her food into small particles and placing these in her mouth. She would let her food remain in her mouth a few minutes to moisten it and then would swallow it without chewing.

Physical Examination.—Physical examination at the time of admission revealed that the patient was obviously having severe pain. She moved the right side of her face as little as possible and guarded it constantly. It was noted that the right side of her face was flushed and there was excessive lacrimation from the right eye. The pupils were equal and regular and reacted to light and convergence. Funduscopic examination revealed no abnormality. There was anesthesia and analgesia of the entire trigeminal distribution on the left, and vibration sense was absent over the left maxilla. The corneal reflex of the left eye was absent. There was no objective impairment to any modality of sensation on the right The patient could hear no sound by air conduction on the right, but was able to hear the tuning fork when applied to the mastoid region on the right. There was no definite facial weakness, although the right side of the face was voluntarily moved less than the left. The results of the remainder of the neurologic examination were not remarkable. Her teeth were dirty and carious; the gums were soft and bleeding, and there was pyorrhea. The results of the remainder of the physical examination were essentially negative. Review of her systems was noncontributory.

Family History.—Her family history revealed no evidence of allergic phenomena.

Laboratory Examination.—There were no significant observations in roentgenologic examination of the chest. A differential count disclosed no eosinophils. The urine was normal. Cutaneous sensitivity tests, both scratch and intradermal, yielded negative results except for a slight reaction to the following allergens: rice, chicken, oats, peaches and black pepper.

Course During Hospitalization.—The patient was admitted at 9 p. m., July 19, 1947, with severe pain. She was given 1 grain (0.06 Gm.) of codeine sulfate hypodermically, which treatment was repeated in four hours, without relief. Because of the persistence of pain, 100 mg. of meperidine hydrochloride ("demerol hydrochloride") was given hypodermically every four hours. This medication, also, did not afford relief. Because of the history, and the intensification of attacks with the spring season, the possibility of an allergic basis for the disease in this patient was entertained. Because of this, antihistaminic therapy was begun. The patient was instructed to take 50 mg.

---

[2] Harris, W.: An Analysis of 1433 Cases of Paroxysmal Trigeminal Neuralgia and the End Results of Gasserian Alcohol Injection, Brain **63**: 209, 1940.

[3] David, L., and Martin, J.: Surgical Lesions in the Paratrigeminal Area, J. A. M. A. **113**: 1952, (Nov. 25) 1939.

[4] Cushing, H.: Extirpation of the Gasserian Ganglion, J. A. M. A **34**: 1035 (April 28) 1900.

[5] McElin, T. W., and Horton, B.: Clinical Observations on the Use of Benadryl: A New Antihistamine Substance, Proc. Staff Meet., Mayo Clin. **20**: 426 (Nov. 14) 1945.

of "pyribenzamine hydrochloride" N.N.R. (*tripelennamine hydrochloride*) initially and a second similar dose thirty minutes later. Within thirty minutes following the first tablet of 50 mg. the previously intractable pain had disappeared completely. The terrifying intensity of her pain is established by a progress note written by the physician on duty the evening of admission and the morning following admission: On July 19 there was a moderate contusion of the dorsum of the right hand at the third metacarpophalangeal joint, sustained in a frenzy of pain. On July 20 the pain seemed intractable; no narcotic seemed to relieve her.

During the next six days the patient was instructed to take 100 mg. of "pyribenzamine" at the beginning of each attack of trigeminal neuralgia. On each of these six days severe attacks were aborted by this treatment. On the seventh day it was decided to give the patient a placebo. The patient thought that she was receiving the medicament that previously had controlled her pain. That evening she experienced a typical attack, which was not relieved by the placebo. The pain continued during the night, over a period of eight hours. However, with the resumption of treatment with "pyribenzamine" the following morning the relief of pain was complete. The patient stated that the "new treatment" had given her the first complete relief of pain since the exacerbation of her symptoms four weeks previously. For two days following the use of the placebo and the readministration of "pyribenzamine," the patient was completely free of pain and required no medication. At this time it was attempted to reproduce the pain by the use of histamine. One tenth of a cubic centimeter of histamine phosphate (1 mg. per cubic centimeter), was injected subcutaneously. In ten minutes a large red raised hard wheal measuring 5 by 11 cm. and with multiple short pseudopodia had developed. Surrounding this was a red area measuring 5 by 11 cm. Also at this time the patient felt the characteristic sharp shooting jabbing pain in her face, although it lasted only a few seconds. No further pain was experienced until six hours later, as she was going to bed. In accordance with instructions, she waited until the pain was well established before taking the prescribed medicament ("benadryl hydrochloride" N.N.R. [diphenhydramine hydrochloride]). Twenty minutes later, after having taken 100 mg. of "benadryl," the pain began to subside, and in thirty minutes the pain had almost completely disappeared. The patient spent a comfortable night and required no more medication.

The following day the patient was free of pain. We decided to make a second attempt to induce an attack by the use of histamine. This time 0.2 mg. of histamine phosphate was injected subcutaneously. In eight minutes a large wheal measuring 2 by 2.3 cm. and with pseudopodia, had appeared at the site of the injection, which was surrounded by a reddened area measuring 7 cm. Approximately ten minutes after the injection was given the patient experienced typical attacks of jabbing pain, which at first were mild but became progressively severer. At this time it was noted that her facial muscles contracted violently with each paroxysm, but these contractions were voluntary, indicating the extreme degree of pain the patient was enduring. She began to cry, and the pain continued unabated, increasing greatly in intensity. During this period of pain, lasting about fifteen minutes, an intravenous infusion of 30 mg. of "benadryl" in 100 cc. of solution of sodium chloride was prepared. This infusion was administered during a five minute period. Two minutes after the infusion was begun the pain began to subside; when about three fourths of the infusion had been given the pain was definitely relieved, and before the entire 100 cc. had been administered the patient was completely free of pain. The total time elapsing from the time that the patient had extreme pain, at which point the infusion was started, to the time when complete relief was obtained was four and one-half minutes.

The following three days the patient had no pain whatsoever and took no medicament of any kind. On the third day following the infusion of "benadryl," a third attempt was made to reproduce the pain with histamine. Again .2 mg. of histamine was given subcutaneously, producing a large wheal similar to the wheal produced in the previous attempts, but no pain occurred. There was a slight flushing of the neck about ten minutes after the injection was given. The patient had a good night's rest, with no recurrence of pain. No medicaments were given. The following day her teeth were cleaned by a dentist for the first time in many years and there was no production of pain, immediate or delayed. Six days after the infusion of "benadryl," on August 6, the patient was given .2 mg. of histamine in 200 cc. of solution of sodium chloride intravenously, over a period of forty-five minutes. Soon after the infusion was started there was flushing of the face and neck; in six minutes there was one tiny jab of trigeminal pain. No further pain was produced. It was suspected that she had been desensitized[6] with histamine, so that no further attempts were made to induce pain for a period of five days. During these five days the patient was released from the hospital and allowed to go home. No medication was given for her use at home. She was able to brush her teeth and carry on a normal life during this period.

After her return to the hospital on August 11, another attempt was made to reproduce the pain, again by intravenous injection of histamine, but the attempt was not successful. However, during the night minimal jabbing pains developed, occuring infrequently, in the right side of the lower jaw. She was given 1/100 grain (0.6 mg) of atropine, with no relief. We decided to attempt to preclude these continual pains completely by the daily administration of "pyribenzamine." On August 12 the patient was given 100 mg. of "pyribenzamine" four times daily. She complained of nervousness and itching and did not sleep well that night. However, the minimal pain which she had been experiencing was relieved. Because of the nervousness and itching, the dose was reduced to 50 mg. four times daily. On the following day there was complete relief of pain with the smaller dose, and there were no reactions noted. She was discharged on the thirty-second hospital day, completely free of pain and with the instructions to take 100 mg. of "pyribenzamine" each time an attack of trigeminal pain occurred.

SUMMARY

A case of typical trigeminal neuralgia is described in which the attacks of pain showed a definite seasonal pattern, being correlated in time with the maturation of spring crops. These attacks of pain were relieved by the administration of "pyribenzamine hydrochloride" N.N.R. (tripelennamine hydrochloride) and "benadryl hydrochloride" N.N.R. (dyphenhydramine hydrochloride).

In pain-free periods typical attacks were provoked by the administration of histamine. After repeated injections of histamine this drug could no longer provoke an attack of trigeminal pain.

Although definite proof is not available the aforementioned observations are consonant with the following theses:

1. The attacks of trigeminal neuralgia in this patient were brought about by the periodic release of some agent resembling histamine, if not histamine itself.
2. The release of the agent was provoked by exposure to some precipitating agent to which the patient was exposed seasonally.
3. The antispasmodic and sedative effect of "pyribenzamine" and "benadryl" were not important in precluding the trigeminal pain, because both atropine and phenobarbital were ineffective; therefore "pyribenzamine" and "benadryl" exerted their therapeutic effect by antihistaminic activity.
4. The ineffectiveness of a provocative dose of histamine, after a series of subcutaneous injections was given, was due to a process of desensitization.

---

[6] Horton, B. T.: The Use of Histamine in the Treatment of Specific Types of Headaches, J. A. M. A. 116: 377 (Feb. 1) 1941.

Council on Pharmacy and Chemistry

THE STATUS OF PENICILLIN IN THE TREATMENT OF SYPHILIS

(December 1, 1947)

SYPHILIS STUDY SECTION NATIONAL INSTITUTE OF HEALTH
U. S. Public Health Service

Since the report in 1943 by Mahoney, Arnold and Harris,[1] that penicillin was effective in the treatment of early syphilis, at least 500,000 patients with syphilis in its various stages[2] have been treated with this antibiotic.

Even after four years, and despite the large number of patients treated, the available data on the use of penicillin in the treatment of syphilis are provisional in character. Although therapy has not been standardized and routine schedules have not been formally promulgated, penicillin is in fact the principal agent employed today in syphilotherapy in the United States.

The purpose of this report is to summarize for the practicing physician the principal facts of clinical importance with regard to penicillin in syphilis, as compiled by Moore[3] and more recently by the Venereal Disease Division of the U. S. Public Health Service, the Syphilis Study Section of the National Institute of Health[4] and by Arnold, Mahoney, Cutler and Levitan.[5]

THE CHEMISTRY OF PENICILLIN

Knowledge of the chemistry of penicillin is incomplete. However, at least one type, penicillin G (benzyl penicillin), has been synthesized,[6] and at least four other types, F, dihydro-F, X and K, are known to exist.

Most preparations of amorphous penicillin contain mixtures of sodium or calcium salts of two or more types of penicillin. Penicillin G, which is available in crystalline form, is the most effective of the four types studied (G, F, X and K) in the treatment of syphilis in animals and in man.

Penicillin K is the least effective because of its rapid inactivation and anomalous pharmacologic behavior in vivo.

On the basis of presently available knowledge, crystalline penicillin G is the preferred product in the treatment of syphilis of any type in man.

Sodium and calcium salts of penicillin dissolve readily in aqueous, saline or dextrose solutions. Since penicillin in solution loses potency slowly at refrigerator temperature and more rapidly at room temperature, such solutions should not be used after twenty-four hours. Solutions should not be heated.

PHARMACOLOGY OF PENICILLIN

The antibacterial activity of penicillin is determined by microbiologic assay in vitro and is expressed in Oxford, Florey and international units, all of which are virtually equivalent. Dosages of penicillin at present are expressed in terms of units, but ultimately, when chemically pure products are widely available, dosages should and probably will be expressed gravimetrically in milligrams.

Under requirements of the Food and Drug Administration, an ampul of penicillin, whether amorphous or crystalline G, must contain a minimum of 85 per cent of the unitage indicated on the label. Since manufacturers generally include excess unitage to allow for deterioration and to assure meeting minimum requirements, an ampul may contain considerably more units than the label indicates. For this reason most statements in the literature concerning dosages of penicillin in terms of units are approximations.

Penicillin administered in aqueous or saline solution is absorbed and excreted rapidly. It is excreted principally in the urine.

A peak concentration of penicillin in the blood serum is reached promptly on intravenous injection, almost equally rapidly, usually within fifteen minutes or less, following intramuscular injection and more slowly after subcutaneous injection. Concentration of penicillin in the blood serum falls sharply almost immediately after intravenous injection and somewhat less rapidly after intramuscular and subcutaneous administration. Thereafter the drug disappears from the blood at a fairly uniform rate, somewhat more rapidly after intravenous than after intramuscular or subcutaneous injection; and the period of time over which a detectable blood level of the drug is maintained varies primarily with the size of the dose. Penicillin is unequally distributed in the body but appears in most of the tissues and fluids so far studied.

The intravenous single injection method of administering penicillin is of little or no value in the treatment of syphilis because the absorption-excretion cycle is completed too rapidly. Therapeutically effective levels of penicillin in the blood cannot long be maintained with even massive single doses.

Administration of penicillin by continuous intravenous drip has been used by several groups of clinicians, but its practical value in the treatment of syphilis is limited by the necessity for continuous confinement of the patient to bed and the frequent occurrence of thrombophlebitis.

Continuous intramuscular and continuous subcutaneous administration of penicillin have, in addition to the disadvantages of continuous intravenous drip, the further disadvantage of painful local reactions.

The usual method now employed in the administration of penicillin in syphilis is intramuscular injection. Penicillin dissolved in sterile water or isotonic sodium chloride solution, 50,000 to 100,000 units per cubic centimeter, is injected deep into buttock, deltoid or thigh muscles, every two to three hours, day and night, in doses of from 20,000 to 100,000 units.

Subcutaneous injections of similar doses in more dilute solution also have been used, but they are accompanied by painful local reactions.

Although penicillin has been used by the intrathecal route, there is convincing evidence that intraventricular, intracisternal and intraspinal administration is accompanied by risk of dangerous toxic reactions. In view of

---

Report by Major Louis A. Altshuler, M. C., U. S. A.; Harry Eagle, M.D.; Comdr. R. Goodman (MC), U. S. N.; J. R. Heller Jr., M.D.; Bascom Johnson, M.D.; John F. Mahoney, M.D.; J. E. Moore, M.D.; Hugo Muench, M.D.; Gordon Seger, D.P.H.; Harry C. Solomon, M.D.; John H. Stokes, M.D., and T. B. Turner, M.D., of the Syphilis Study Section to the Council on Pharmacy and Chemistry, American Medical Association.

[1] Mahoney, J. F.; Arnold, R. C., and Harris, A.: Penicillin Treatment of Early Syphilis: A Preliminary Report, Ven. Dis. Inform. **24**: 355 (Dec.) 1943.

[2] Statistical Section, Venereal Disease Division, United States Public Health Service: unpublished estimate.

[3] Moore, J. E.: Penicillin in Syphilis, Springfield, Ill., Charles C Thomas, 1947.

[4] Most of the extensive literature on the subject of this report has been summarized up to late 1946 by Moore,[3] and most of the pertinent papers before and since that date have been published or abstracted in the *Journal of Venereal Disease Information* and the *American Journal of Syphilis, Gonorrhea and Venereal Diseases,* to which the reader is referred for detailed reports.

[5] Arnold, R. C.; Mahoney, J. F.; Cutler, J. C., and Levitan, S.: Penicillin Therapy in Early Syphilis: III, Ven. Dis. Inform. **28**: 241 (Nov.) 1947

[6] du Vigneaud, V.; Carpenter, F. H.; Holley, R. W.; Livermore, A. H., and Raebele, J. R.: Synthetic Penicillin, Science **104**: 431 (Nov. 8) 1946.

In Absorption-Delaying Vehicles (Oil and Wax): The only method of prolonging penicillin blood levels currently suitable in the treatment of syphilis is the use of penicillin in 95.2 per cent peanut oil and 4.8 per cent beeswax. Whether the penicillin suspended in this vehicle is amorphous or crystalline, a single intramuscular injection of 600,000 units (2 cc.) provides a sustained measurable blood level for twenty to twenty-six hours.

The clinical data available as to this suspension are so far based on the amorphous rather than the crystalline product. So administered, however, ten consecutive daily intramuscular injections of 600,000 units each to a total of 6 million units may be expected to provide a failure rate almost exactly comparable (about 15 per cent at the end of one year) to that following the use of 4.8 to 9.6 million units of amorphous penicillin in aqueous solution under hospitalized conditions.

More recently crystalline penicillin G is available as the suspension in oil and wax. If results with this preparation parallel those with crystalline G in aqueous solution, the failure rates will be correspondingly lowered.

A method of penicillin therapy of early syphilis suitable for office use in ambulatory patients is therefore entirely feasible and as satisfactory as the use of aqueous penicillin under hospital conditions. The schedule presently advised is, for crystalline penicillin in oil and wax: total dose, 6 million units; total duration of treatment, ten days; route of administration, intramuscular; individual injection, 600,000 units (2 cc.); interval between injections, twenty-four hours, and total number of injections, ten.

Local discomfort and allergic reactions (such as giant urticaria) are slightly more frequent after penicillin in oil and wax than after aqueous solutions of the antibiotic. Local pain and induration may be minimized, however, by the precaution of clearing the needle, in place in the gluteus muscles, with a bubble of air in order to avoid deposition of the substance along the needle track in subcutaneous fat.

Penicillin Administered Concurrently with Other Treatment Methods.—Experimental evidence indicates an advantage if penicillin is given simultaneously with arsenic or a bismuth compound or during artificial fever. In man, however, the benefits of such combined treatment are not definite, at least in the dosages and over the periods so far studied. The addition of a maximum of 480 mg. of oxophenarsine hydrochloride (eight injections of 60 mg. each, given daily or every other day) and/or of 1,000 mg. bismuth subsalicylate (five injections of 0.2 Gm. each given every two to three days) to concurrent penicillin therapy has not greatly reduced the failure rates; nor has it been possible to improve results by penicillin administered during adjuvant fever therapy. Moreover, the addition of these adjuvants changes a practically innocuous method of treatment into a more dangerous one.

For these reasons, and since the results from penicillin alone seem so satisfactory in early syphilis, adjuvant therapy with arsenic, bismuth preparations, or fever is not advised as a first course of treatment.

However, there are some theoretic and perhaps practical advantages to a combined therapeutic attack in patients who have failed after an original course of penicillin.

Retreatment of Penicillin Failures.—Retreatment must, of course, be given to those patients who have clinical relapse (including reinfection) or serologic relapse and probably should be given to those patients who still show significant seropositivity (4 dilution or 16 Kahn units) a year after the original course. In these circumstances and in view of the fact that retreatment with penicillin alone is followed by a higher failure rate than is original treatment, consideration should be given to the use of a retreatment course consisting of crystalline penicillin G (administered either in aqueous solution or in oil and wax as already mentioned) and in addition, simultaneously with and after the penicillin course, 600 mg. oxophenarsine hydrochloride given every other day in ten intravenous injections of 60 mg. each over a total of nineteen days and 2,000 mg. bismuth subsalicylate in oil given every five to seven days in ten intramuscular injections of 200 mg. each (of the salicylate, not of bismuth metal) over a total period of fifty to seventy days.

It must be recognized that arsenic and bismuth in these dosages increase the risk of serious reactions or death from treatment. The anticipated mortality rate is about 1 in 30,000.

LATENT SYPHILIS

The use of penicillin in the treatment of latent syphilis, in which the only evidence of the disease is the positive serologic test, is based on the assumption that since the drug is effective in the treatment of early and late syphilis, it may be expected in latent syphilis to prevent development of clinical manifestations of the disease. On this assumption, many clinicians are treating latent syphilis with the same schedules of penicillin therapy used in the treatment of early syphilis.

Penicillin is no more effective than arsenic and bismuth in reducing the quantitative titer of the serologic test for syphilis. The significance of this observation, however, must be interpreted in light of the facts that reversal to serologic negativity is not a necessary criterion of success in the treatment of latent syphilis and that, irrespective of method or duration of treatment, seroresistance is the rule in syphilis of more than five years' duration.

A post-treatment observation period of ten to twenty-five years will be necessary to determine whether penicillin offers the patient the 95 to 98 per cent chance of future clinical health which is offered by six months of arsenic and bismuth therapy. Despite the lack of assurance of clinical success, penicillin treatment of latent syphilis offers the advantages of brevity, safety and freedom from risk of reaction from heavy metals. If it is used, periodic post-treatment laboratory and clinical examinations are especially important.

For patients with seroresistant latent syphilis who previously have received six months of continuous metal chemotherapy or its equivalent, the use of penicillin produces no presently apparent clinical or serologic results other than an occasional gain in weight.

BENIGN LATE SYPHILIS

Early clinical results indicate that total dosage of 2 to 4.8 or more million units of penicillin is effective in healing cutaneous, mucocutaneous, osseous and hepatic lesions of benign late gummatous syphilis. Although many years of observation will be required to determine the ultimate clinical outcome of this type of syphilis treated with penicillin, the immediate results appear to be as good as those of arsenic and bismuth therapy.

CARDIOVASCULAR SYPHILIS

The value of penicillin in the treatment of cardiovascular syphilis cannot be determined until there has accumulated a large series of post-treatment observations comparing the life expectancy of patients treated with penicillin with that of patients treated with other drugs or not at all. The available evidence indicates that the Herxheimer reaction (therapeutic shock) cannot be avoided, at least in early syphilis, by initiating penicillin treatment in extremely small doses. Since this may also be true in cardiovascular syphilis, and since therapeutic shock in such patients may have disastrous results, it is suggested that in syphilitic aortitis with aortic regurgitation, saccular aneurysm or obvious or masked coronary or myocardial disease it may be advisable to withhold penicillin altogether, or at least until after preparatory treatment with heavy metals has been given. If penicillin is used, the total dosage should be large (5 or more million units), the individual doses relatively small (25,000 to 40,000 units) and the duration of treatment prolonged (fifteen or more days).

OCULAR SYPHILIS

Syphilitic Iritis.—Penicillin is safe and rapidly effective in the treatment of syphilitic iritis. The time and dosage schedules of treatment are similar to those employed for early syphilis in general.

Interstitial Keratitis.—In the treatment of interstitial keratitis penicillin is of uncertain value, even when a total dose of 4 to 10 million units is employed. Less than half the patients respond promptly. Penicillin administered locally at least three times daily by iontophoresis, penicillin-soaked cotton packs or in ophthalmic ointments has appeared to be effective in a small number of cases. Fever induced by tertian malaria, typhoid vaccine or other means, combined with arsenic and bismuth therapy, should be used if acute inflammation and corneal infiltration do not respond promptly to penicillin therapy.

Syphilitic Primary Optic Atrophy.—The effectiveness of penicillin in primary optic atrophy will require years of observation for determination. Meanwhile, and because of its established value in arresting the progress of primary optic atrophy, induced malaria should be used along with penicillin therapy.

THE PREVENTION OF PRENATAL SYPHILIS

Penicillin is nearly 100 per cent effective in the prevention of prenatal syphilis. It is preferable to conventional arsenic and bismuth therapy, which under these circumstances is unnecessary and undesirable. In maternal early syphilis penicillin is equally effective in protecting the fetus regardless of the trimester of pregnancy in which treatment is given (certainly up to the eighth month of pregnancy). In any stage of the maternal infection, penicillin should be used as soon as the diagnoses of syphilis and pregnancy have been established. The available evidence indicates that penicillin in ιqueous solution is probably superior to the suspension n oil and wax in this special circumstance. Schedules 'hich have been used successfully for pregnant women have provided total doses of 4.8 to 6 million units of penicillin in aqueous solution administered at two to three hour intervals over periods of eight to fifteen days.

Following completion of penicillin treatment, the mother must be followed clinically and with quantitatively titered serologic tests, at least as often as once a month until delivery. After delivery, follow-up examinations should be based on the stage of the mother's infection.

Retreatment with penicillin should be given to the mother during pregnancy if (*a*) there is evidence of clinical or serologic relapse, or (*b*) the mother has previously untreated or inadequately treated syphilis of less than four years' duration and the original maternal serologic titer does not significantly decline within three months after treatment.

The infant must be followed after birth for a minimum period of four months, by means of (*a*) frequently repeated physical inspections, (*b*) quantitatively titered blood serologic tests, preferably every two weeks [10] and (*c*) roentgenograms of the long bones taken preferably at the first and sixth weeks of life.

CONGENITAL SYPHILIS

Infantile Congenital Syphilis.—Penicillin in aqueous solution, administered every two or three hours day and night in a total dosage of 100,000 to 400,000 units per kilogram of body weight over a period of eight to fifteen days, is a more satisfactory method of treating infantile congenital syphilis (in children up to 2 years of age) than any schedule yet employed. The effect of penicillin in oil and wax has not yet been thoroughly studied in infants and young children.

The death rate among syphilitic infants treated with penicillin appears to be no greater than among those receiving conventional heavy metal therapy. Most of the deaths are attributable to causes other than syphilis, which is a contributory factor in only a minority. Many of the difficulties encountered in the management of syphilitic infants are due to infectious or nutritional causes other than syphilis, and good pediatric care is essential.

Late Congenital Syphilis.—Results of treatment of patients manifesting the various forms of late congenital syphilis have been essentially similar to those of patients with analogous manifestations of the acquired disease. Whether penicillin will permanently arrest the progression of late or latent congenital syphilitic infection cannot be ascertained for many years.

NEUROSYPHILIS

Asymptomatic Neurosyphilis.—Penicillin exerts a profoundly favorable effect on the spinal fluid abnormalities in early and late asymptomatic neurosyphilis. Most striking and prompt is the reduction of the cell count during treatment, with its usual return to normal by ten to twenty-four weeks after treatment. In most cases the cell counts have remained normal throughout continued post-treatment observation. The protein content is also reduced promptly but less strikingly. Normal values are usually reached by the sixth month and maintained thereafter. The Wassermann complement fixation reaction and colloidal tests improve more slowly.

---

[10] Normal infants born of seropositive mothers may themselves be seropositive at birth and for a few weeks thereafter due to the placental transfer of maternal reagin. Infants should not be treated for syphilis on serologic grounds alone, unless the serologic titer is sustained or rising in successive tests at four to eight weeks after birth.

In each of these tests the trend toward normal is dependent on the degree of the abnormalities before treatment and the duration of infection, with response more prompt and satisfactory in early than in late asymptomatic neurosyphilis.

The effect of penicillin on the quantitative blood serologic titer in both early and late asymptomatic neurosyphilis is similar to that of arsenic and bismuth treatment.

Symptomatic Neurosyphilis.—Penicillin administered intramuscularly beneficially influences all spinal fluid abnormalities in symptomatic neurosyphilis of any type fully as promptly as in asymptomatic neurosyphilis. There is some evidence that penicillin plus malaria has an even more favorable effect on the spinal fluid.

The influence of penicillin on the multiplicity of clinical manifestations of symptomatic neurosyphilis is not so readily assessed, principally because of the difficulty of distinguishing between clearcut clinical improvement in symptoms due to the inflammatory component and those dependent on irreversible degenerative changes in tissue. In general it may be said that symptomatic responses are better than those obtained by metal chemotherapy. An exact comparison of penicillin with fever therapy is not yet possible.

Acute Syphilitic Meningitis.—Penicillin in a total dose f 5 to 10 million units has resulted in immediate ymptomatic improvement with disappearance of headache and stiff neck within two days, disappearance of cranial nerve paralysis in most cases, gradual improvement of nerve deafness and the relief of convulsions. In most such cases the blood serologic titer and the spinal fluid have reverted to complete normality and have remained so.

Dementia Paralytica.—Penicillin alone in paresis and taboparesis has now been used long enough to show that it extends the average four year life expectancy of the untreated patient.

Observation of clinical effects on patients treated with penicillin show moderate to definite improvement in the mental status of about half the cases, no improvement or further deterioration in 20 to 40 per cent. and death in 6 to 10 per cent up to two years after completion of treatment Many paretic patients whose mental condition prevented employment before treatment have been able to return to work.

Frequent and striking improvement in such symptoms as tremor, defects in writing and speech, undernutrition, and brain wave abnormalities shown by the electroencephalogram has been observed among penicillin-treated persons with paresis.

There is some evidence which indicates that the transformation of the psychosis to manic, schizoid or paranoid trends in patients in whom these manifestations previously were absent may occur more frequently after penicillin therapy than after fever therapy. There is also a possibility that complete restoration of preparetic mental status may be less frequent after penicillin alone than after treatment with fever.

There is some evidence, not yet conclusive, that penicillin plus malaria may give better clinical results in the treatment of paresis and taboparesis than are given by penicillin alone.

Tabes Dorsalis and Taboparesis.—Because of the erratic and unpredictable course of untreated tabes dorsalis, in which spontaneous remission or arrest is known to occur, it is difficult to determine the real influence of penicillin in this disease. Data are not yet available to determine whether penicillin therapy will arrest permanently the tabetic degenerative processes. Penicillin has varying effects on the different symptoms characteristic of tabes dorsalis and taboparesis. Decrease in frequency and severity of lancinating pains has been reported by about half the patients, but in some this improvement has not been maintained. Some degree of improvement has been observed in subjective paresthesias. A few patients have reported complete relief from gastric crises. About half those with tabetic ataxia have shown improvement in gait, but some of this may have been coincidental. Improvement, sometimes striking, in urinary disturbances has occurred. In the majority of tabetic males among whom impotence was a symptom there is no improvement, and in none has there been a complete return to normal. Charcot joints and trophic ulcers have not been influenced favorably. Meager available data suggest that penicillin in combination with malaria may be more effective in treatment of tabes dorsalis than penicillin alone. Penicillin appears to be more effective than arsenic and bismuth compounds and is to be preferred because of lower toxicity.

Diffuse Meningovascular Neurosyphilis. — Clinical improvement after treatment with penicillin among patients in this diagnostic category, excepting Erb's paraplegia and nerve deafness, has been approximately the same as that observed after arsenotherapy.

Syphilitic Epilepsy.—Information on the few neurosyphilitic patients with epileptiform seizures who have been treated with penicillin alone indicates that convulsions are not prevented and that anticonvulsant medication is necessary.

Erb's Syphilitic Spinal Spastic Paraplegia.—No clinical improvement and virtually no improvement in spinal fluid abnormalities. have been observed in the few patients who have been treated with penicillin for Erb's syphilitic spinal spastic paraplegia. Penicillin apparently is similar in this regard to other methods of treatment.

Syphilitic Nerve Deafness.—Return to normal hearing, or great improvement in hearing, has been achieved by penicillin therapy in patients suffering with syphilitic nerve deafness accompanying acute syphilitic meningitis. Improvement in the hearing of about half the patients treated with penicillin for late syphilitic nerve deafness has been effected, and arrest of progression of impairment of hearing has been achieved in others.

Penicillin Alone Versus Penicillin Plus Fever.—A total of 4 to 10 million units of penicillin alone in aqueous solution administered over a period of seven and one half to twenty-one days, is suitable for the initial course of treatment for patients with early or late asymptomatic neurosyphilis, acute syphilitic meningitis, diffuse meningovascular neurosyphilis, gumma of the brain or cord and vascular neurosyphilis.

A total of 10 to 20 million units of penicillin administered over a period of twelve to twenty days accompanying induced malaria fever is advisable, unless the latter is contraindicated, for patients with neurosyphilis entailing a serious threat to life or vital functions, e. g., dementia paralytica, taboparesis, primary optic atrophy, nerve deafness in late syphilis, nonparetic syphilitic epilepsy and Erb's spinal spastic paraplegia.

Data are not yet available permitting a comparison of penicillin in aqueous solution with penicillin in oil and wax in neurosyphilis.

POST-TREATMENT OBSERVATION

Careful post-treatment observation over an indefinite period of time is essential for syphilitic patients treated with penicillin. Many years must pass before the probable ultimate outcome of penicillin therapy for syphilis can be definitely stated. Each patient should be educated by the physician or clinic as to the importance of continuity of his own post-treatment follow-up.

Early Syphilis.—During the first year after treatment, the patient should return once a month for (*a*) inspection of the skin and mucosae (patient completely stripped —especial attention to buccal cavity and anogenital region) and (*b*) blood serologic tests for syphilis quantitatively titered.

Relapse, clinical or serologic, is most likely between the fourth and ninth months after treatment and should be especially watched for at this time. Clinical relapse (of the infectious mucocutaneous variety) is usually preceded by serologic relapse.

Serologic relapse may be represented either by a return of positivity in a serologic test for syphilis which has already reversed to negative or by a sustained increase in titer in one which is still positive.

Seroresistance may be apparent almost from the start of treatment, in that the titer of the serologic test remains at pretreatment level or falls only slightly; or it may not be obvious for twelve to twenty-four months (a titer which falls slowly during this period of time and then stabilizes at a low level).

Retreatment during the first year is indicated for: (*a*) clinical relapse of any type (infectious mucocutaneous, ocular, supposed reinfection or neurorecurrence; (*b*) serologic relapse (confirmed by two or three repetitions of the serologic tests in order to exclude laboratory variations); (*c*) abnormalities in the spinal fluid (asymptomatic neurosyphilis) if present six months or later after treatment; (*d*) the birth of a syphilitic infant, and/or (*e*) failure of the blood serologic titer to fall appreciably within the first six months after original treatment. Retreatment need not be given if seropositivity persists at a low titer (fluctuating) or if the trend toward seroreversal is still downward.

The spinal fluid must be routinely examined at about the sixth month. If it is normal and if progress has been otherwise uneventful (persistent seronegativity of the blood, no evidence of clinical progression or relapse), the spinal fluid examination should be repeated two years after treatment. If it is then negative and if uneventful progress continues, this examination need not be repeated.

During the second year after treatment, assuming that progress has been so far satisfactory, the blood serologic test for syphilis may be done every three months, rather than monthly.

During the third and subsequent years, for an indefinite period of time, the tests should be done every six months. Annual physical examinations should be performed, with special reference to ocular fundus, neurologic and cardiologic status.

Infantile Congenital Syphilis.—Infants treated with penicillin should be followed exactly in the same manner as adults with early acquired syphilis.

Pregnant Women with Syphilis.—If the mother's infection is recent (manifest early syphilis during pregnancy, early latent syphilis of less than four years' duration), she should be followed during and after delivery in the same manner as patients with early acquired syphilis.

For maximum protection of the infant, such mothers should be retreated during pregnancy not only for obvious clinical or serologic relapse but also for an unchanged or persistently high serologic titer.

If the mother's infection is latent and of longer standing than four years, such frequent follow-up is not essential and retreatment is not necessary because of failure of serologic response. Seroresistance after penicillin is the rule in late latent syphilis, as it is after all other forms of treatment.

Infants Born of Syphilitic Mothers.—Infants born of mothers who had primary or secondary syphilis during pregnancy should have a serologic test for syphilis done at birth (cord or venous blood), every two weeks thereafter for the first two months and again at the third and fourth months of life. Infants born of mothers with latent syphilis should have a serologic test done at birth (cord or venous blood), at six weeks and again at the third and fourth months.

About 20 per cent of normal nonsyphilitic infants born of treated but still seropositive mothers are themselves seropositive at birth. A positive serologic test in the infant at this time (or within the first month of life) is not an indication for immediate treatment of the child unless confirmed by other evidence of congenital syphilis (clinical or roentgenologic). Serial quantitative titration of the serologic test in seropositive infants is essential.

Routine roentgenograms of the long bones should be taken one week and six weeks after birth.

If the infant is seronegative and otherwise normal at 4 months of age, it may be dismissed as nonsyphilitic.

Late Syphilis (Excluding Neurosyphilis).—For any type of late syphilis, whether latent or with lesions (excepting neurosyphilis), the patient should have, as a minimum, quantitatively titered serologic tests every six months and periodic annual physical surveys for the duration of life.

Neurosyphilis.—In neurosyphilis of any type, the spinal fluid should be retested every six months for the first two to three years and at yearly intervals thereafter. The most important of several tests of the spinal fluid are the two which are too often omitted: cell count and quantitative estimation of protein. If these two fall to normal and remain so, regardless of the response of the spinal fluid Wassermann or colloidal curve, the process in the nervous system is probably inactive and clinical relapse or progression is unlikely. Conversely, if cell count and/or protein content remain elevated with no trend toward normal, or if after becoming normal either or both increase to abnormal levels, a recrudescence of activity is probable and treatment in some form (preferably with fever and penicillin) should be repeated.

In addition, periodic neuropsychiatric reexamination (with special examinations as indicated, e.g., ocular fundi, visual acuity, visual fields in primary optic atrophy and audiometer tests in nerve deafness) should be repeated at least as often as every six months for the first two to three years and yearly thereafter.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Twelve dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, MARCH 27, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors employed by the American Medical Association from their work continues. This issue of THE JOURNAL has been prepared largely by the use of Vari-Typer machines Because of the difficulties of reorganization of the headquarters office necessitated by this situation, the editorial material in this issue of THE JOURNAL has been greatly condensed.

AMERICAN CANCER SOCIETY CAMPAIGN

Typical of the American way in meeting the challenge of our major problems in disease is the work of the American Cancer Society, representing the biggest type of cooperation between a voluntary organization, the medical profession and the public. The confidence of the people of the United States in this organization is indicated by the recent increase in the funds made available to the American Cancer Society by voluntary subscriptions. The total annual income has gradually increased from a few hundred thousand dollars a year to a goal in 1948 of $15,000,000.

In the development of its services the medical and scientific department of the American Cancer Society has created four divisions, including a library, a division of statistical studies, a division of service and a division of professional education. The library is being developed as the most complete repository of information on cancer that can be assembled. Each month a bibliography of current literature on cancer is made available to the medical profession. Reprints are being collected for a library service covering every aspect of the cancer problem. In the attack on cancer accurate statistics are necessary, and the division of statistics is now collecting, collating and disseminating all the available information concerning the incidence of cancer and its mortality in relationship to many conditions likely to affect these figures.

Prominent in the developments of the American Cancer Society is the creation of "cancer detection centers." Thus far the statistics division has collected data on forty-three centers, and the information derived from this study will guide the future development of similar centers in the United States. The statistics division also aids in the development of records for recording cancer.

Recent studies show that there are now three hundred and twenty-four cancer information services in the United States and a total of one hundred and fifty cancer detection centers which meet the standards established for such centers by the American College of Surgeons. In addition, there are thirty-five other centers designed simply to examine apparently well persons for cancer. Investigations indicate also that there are now four hundred and seven clinics in the United States which specialize in the diagnosis and treatment of cancer. The estimates show that a clinic may serve effectively a population of 100,000; around nine hundred additional cancer clinics are needed. Many of the branches of the American Cancer Society are carrying on special services for advanced cases of cancer with terminal illness. Prominent also among the functions of the service division is the work of the field army, which aids with the making of dressings, transportation of the sick, help in supplying equipment for the sick room and personal comforts to patients with cancer.

Another aspect of the work of the American Cancer Society is the education of physicians. Studies are being made of the extent to which cancer is being taught in our medical schools. Panels are being created for graduate education of physicians throughout the country. Nineteen states have established speakers bureaus and four more are in process of formation. The American Cancer Society is developing selections of lantern slides, motion picture films and similar educational material which are available to those lecturing in the field. Plans have been made for the making of seven motion pictures in color. A motion picture library covering all existing films on cancer is being established, and thirty-nine available films are now being duplicated. The American Cancer Society has cooperated with the American Medical Association in publishing sixteen articles in THE JOURNAL. Contemplated also are a series of monographs and the establishment of a new journal for the practicing medical profession to be called *Cancer*.

Recently the American Cancer Society has approved the establishment of twenty annual fellowships in the care of patients with cancer to be awarded to young physicians who desire to obtain advanced training in the diagnosis and treatment of this disease. Fellowships have also been established for the study of statistical analysis. Among recent activities have been the development of a conference on cytologic diagnostic methods in Boston, April 12 and 13, and a grant to the American Radium Society to support a conference on breast cancer at its forthcoming fifthieth anniversary meeting.

This intensification of activities directed against this most feared of all diseases will yield in the near future a positive control beyond anything available anywhere else in the world. The pattern in the securing of funds and in the organization of activities follows the leadership of the National Foundation for Infantile Paralysis, which is being followed also with some modifications by the American Heart Association. Surely here again is proof of the outstanding merit of the voluntary American way of life in the attack on disease.

Current Comment

ARCHIVES OF SURGERY

Twenty-eight years ago a group of American surgeons requested the American Medical Association to publish a periodical dealing with clinical and experimental investigations in the field of surgery. The editors of the *Archives of Surgery* have decided now to establish new sections in the *Archives* which should make it appeal to a still larger number of surgeons in this country. The *Archives of Surgery* will introduce a new section called "The Surgical Forum," to be conducted by Dr. Robert Elman of the editorial board. In this section will be published queries and answers in regard to surgical problems, unusual surgical experiences and subjects for discussion about which the readers desire additional information. Arrangements have been made whereby the papers presented before the Western Surgical Association and the Central Surgical Association will be published in the *Archives*. A third new feature will be "The Surgical Clinic", in which section will be published at appropriate intervals the verbatim report of the discussion of a case as conducted by members of some surgical staff, in addition to the history, physical findings, laboratory and roentgen ray. The Surgical Clinic section will be supervised by Dr. Gustaf E. Lindskog, of the editorial board.

CORNELIAN CORNER

Cornelia, daughter of Scipio Africanus the Elder and mother of the Gracchi, following the death of her husband refused numerous offers of marriage and devoted herself instead to the education of her twelve children. When asked to show her jewels, she presented her sons, saying, ''These are my jewels.'' Her name is recorded in history as that of a mother devoted to her children. Now it is further perpetuated by an organization established in Detroit in 1942 called the Cornelian Corner. When the kitchen used to serve the whole family as a living room, the mother would face a corner of the room when nursing her baby. This custom is commemorated in the second half of the name of this extraordinary organization. The increase in our knowledge of psychosomatic medicine has emphasized the importance of early impressions on the growing infant. Specialists in the fields of pediatrics, obstetrics, psychiatry and child development and others interested in restoring the close relationship that used to exist between the mother and the growing child are members of the group. Among other activities, breast feeding is emphasized as a necessary concomitant to proper rearing. Many of our current practices tend toward spartan routine rather than loving care. The importance of emotional security for the baby is now recognized. As Dr. Leo H. Bartemeier[1] points out. the program of the Cornelian Corner "aims at relief of the cultural tensions so incident to feeding, toilet training and child discipline." Among other planks in the program are abandonment of the artificial practice of separating the newborn child from its parents, encouragement of the breast feeding of infants with opportunity to nurse whenever they are hungry or anxious, and postponement of the establishment of sphincter control until the baby can walk, verbalize its needs and learn to be clean and dry through imitation, curiosity and familiarity with the toilet. These are radical departures from previous methods of infant care. The professional experience of recent years, supplemented by the fundamental research of Aldrich and his group, seems to indicate that the proponents of the Cornelian Corner have begun a new epoch in infant care.

---

1. Bartemeier, L. H.: Concerning the Cornelian Corner, Am. J. Orthopsychiat. 27:594-597 (Oct.) 1947

ORGANIZATION SECTION

Official Notes

Following is the list of stations broadcasting the program, as reported by the National Broadcasting Company:

N.B.C. BROADCAST SCHEDULE

"Doctors Today," which is broadcast over approximately one hundred and forty stations of the N.B.C. Network coast to coast offers the following topics in the weeks to come:

March 27	Allergy.
April 3	Cancer in Children.
April 10	Public Health Nursing.
April 17	The Public Wants a Doctor;
May 1	Child Guidance.
May 8	Human Brucellosis.

These programs are supervised by Judith C. Waller and written by William J. Murphy of the Central Division, National Broadcasting Company, Chicago, and produced by Norman Felton. The twenty piece orchestra of the National Broadcasting Company is directed by Bernard Berquist. Scientific supervision is by Dr. W. W. Bauer, director, Bureau of Health Education.

WNBC	New York	WBZ-A	Boston-Springfield
WSYR	Syracuse	WTAM	Cleveland
WBAL	Baltimore	WWJ	Detroit
WSM	Nashville	KSTP	Minneapolis-St. Paul
WLBZ	Bangor	WERC	Erie
WJAC	Johnstown	WTBO	Cumberland
WSAN	Allentown	WGAL	Lancaster
WAZL	Hazeltown	WTCB	Flint
WTRC	Elkhart	WGBF	Evansville
WMAM	Marinette	KELO	Sioux Falls
WTAR	Norfolk	WMVA	Martinsville
WISE	Asheville	WTNT	Augusta
WJAX	Jacksonville	WLAK	Lakeland
WSB	Atlanta	WOPI	Bristol
WCOA	Pensacola	KVOL	Lafayette, La.
WJDX	Jackson	WMIS	Natchez
KANS	Wichita	WFAA	Dallas
WTIC	Hartford	WCSH	Portland
WHAM	Rochester	KDKA	Pittsburgh
WDEL	Wilmington	WMAQ	Chicago
KSD	St. Louis	WOW	Omaha
WINR	Binghampton	WBLK	Clarksburg
WFBG	Altoona	WMBG	Richmond
WHAW	Reading	WORK	York
WBRE	Wilkes-Barre	WOOD	Grand Rapids
WGL	Fort Wayne	WHIZ	Zanesville
WEEK	Peoria	WEAU	Eau Claire
WPTF	Raleigh	WSOC	Charlotte
WCRS	Greenwood	WTMA	Charleston
WORZ	Orlando	WIOD	Miami
WAPO	Chattanooga	WSFA	Montgomery
WSMB	New Orleans	KPLC	Lake Charles, La.
WAML	Laurel	KOAM	Pittsburg, Kan.
WKY	Oklahoma City	KGNC	Amarillo
WJAR	Providence	WGY	Schenectady
WBEN	Buffalo	WRC	Washington
KYW	Philadelphia	WAVE	Louisville
WDAF	Kansas City	WRDO	Augusta
WENY	Elmira	WGKV	Charleston, W. Va.
WMRF	Lewistown	WTTM	Trenton
WEST	Easton	WKBO	Harrisburg
WRAK	Williamsport	WLOK	Lima
WBOW	Terre Haute	WKBH	LaCrosse
KGBX	Springfield, Mo.	KODY	N. Platte, Neb.
WSJS	Winston-Salem	WFBC	Greensville

WIS	Columbia	WSAV	Savannah
WFLA	Tampa	WEAT	Lake Worth.
WKPT	Kingsport	WALA	Mobile
KSYL	Alexandria, La.	WJBO	Baton Rouge
WFOR	Hattiesburg	KVOO	Tulsa
KWBW	Hutchinson	KTBS	Shreveport
KARK	Little Rock	WOAI	San Antonio
WDAY	Fargo	KOB	Albuquerque
KTFI	Twin Falls	KXLK	Great Falls
KFSD	San Diego	KGW	Portland
KYUM	Yuma	KAWT	Douglas
KGLU	Safford	KOH	Reno
KNOE	Monroe, La.	KRIS	Corpus Christi
KFYR	Bismarck	KTSM	El Paso
KXLF	Butte	KXLQ	Bozeman
KMJ	Fresno	KOMO	Seattle
KTAR	Phoenix	KYCA	Prescott
KIST	Santa Barbara	CMB	Montreal
KPRC	Houston	KRGV	Weslaco
KOA	Denver	KSEI	Pocatello
KXLJ	Helena	KFI	Los Angeles
KPO	San Francisco	KHQ	Spokane
KVOA	Tucson	KWJB	Globe
KCRA	Sacramento		

In some instances the time of the network program conflicts with local commitments. In these instances recordings of the program are made and broadcast at a subsequent hour. Local radio columns should be consulted. The program goes on the network at 4 p.m. Eastern standard time, 3 p.m. Central standard time, 2 p.m. Mountain standard time and 1 p.m. Pacific standard time.

Transcriptions on Physical Medicine Available

The Bureau of Health Education in cooperation with the Council on Physical Medicine announces the distribution, beginning March 15, of electrical transcriptions devoted to phases of physical medcine. The recordings each last fourteen minutes and thirty' seconds. The topics and speakers are as follows:

1. Infantile Paralysis—Dr. Robert L. Bennett, Warm Springs, Ga.
2. Massage—Dr Morris A. Bowie, Bryn Mawr, Pa., and Dr. George M. Piersol, Philadelphia.
3. Exercise—Dr. Frank H. Ewerhardt and Fred V. Hein, Ph.D., Chicago.
4. Local Applications of Heat and Diathermy—Dr. Frank H. Krusen, Rochester, Minn.
5. Sunlight, Real and Artificial—William W. Coblentz, Ph.D., Washington, D. C.
6. Hearing Aids—Dr. Hallowell Davis, Boston.
7. Radioactive Substances—Dr Hymer H L Friedell, Cleveland.
8. In Bed or out—Dr John H. Powers, Cooperstown, N. Y.
9. Occupational Therapy—Dr. Winfred Overholster, Washington, D. C.
10. Oxygen in Medicine—Dr Ralph M Waters, Madison, Wis.
11. Shoes and Artificial Limbs—Dr Frank R Ober, Boston.
12. Physical Treatment in Psychiatry—Dr. Arthur L. Watkins, Boston.
13. Skin, Hair and Electrolysis—Dr. Anthony C. Cipollaro, New York.

The series as a whole is loaned without cost, except that borrowers are requested to pay the return transportation, to local medical societies or for use in broadcasting projects approved by such societies. No authorization will be given to broadcast individual selected records from this series. Local groups that borrow the transcriptions are expected to make all local arrangements for radio time and for publicity and are likewise expected to take the responsibility for prompt return of the records after their use. For information address the Bureau of Health Education and ask for the Radio Handbook and the transcription listings, single copies free.

Washington Letter

(From a Special Correspondent)

March 25, 1948

Disabling Work Injuries

The Bureau of Labor Statistics reports that for the seventh consecutive year disabling work injuries affected more than 2,000,000 persons during 1947. Rising employment and the effects of two major disasters were blamed for offsetting some improvement in the general aspects of on the job safety. The 1947 total of such injuries was reported at 2,059,000, a rise of 1 per cent above 1946. About 17,000 persons were killed in accidents, on the job, as compared with only 16,500 in 1946, a 3 per cent increase. This increase was traced primarily to the Texas City explosion and the Centralia, Ill., mine disaster.

Senator Taft Opposes Free Medical Or Dental Care

In a statement read at the five day postgraduate clinic of the District of Columbia Dental Society, Senator Robert A. Taft, Ohio, stated that "I feel very strongly that the federal government should not encourage any general program of free medical or free dental care for everybody." Senator Taft is author of the health bill introduced in opposition to the administration-supported national health insurance plan.

Plans For National Health Assembly Being Formulated

Federal Security Administrator Oscar R. Ewing announced that plans for the National Health Assembly, to be held here May 1 to 4 were discussed at a meeting of the executive committee. The assembly is to be held to guide the federal agency in drawing up a ten year health program for the nation at the request of President Truman.

Young Americans Crippled by Poliomyelitis

A Metropolitan Life Insurance Company survey reveals that nearly 74,000 Americans under 21 years of age were crippled because of poliomyelitis, as of one year ago. The total had increased about 10 per cent in the past two years and almost 45 per cent in the past seven years.

Second Major Cancer Research Award Announced

A $50,000 gift to Georgetown University was received from Mrs. Mabel C. Hinshaw in memory of the Metropolitan Opera baritone, William Wade Hinshaw, which will be used in an intensive cancer research project at the new Georgetown Hospital, officials announced. The American Cancer Society recently awarded $60,000 to the Warwick Clinic, affiliated with George Washington University, for cancer research.

Medical Legislation

STATE LEGISLATION

California

Bill Introduced.—A Constitutional Amendment proposes an amendment to the state constitution which would authorize and direct the legislature to establish a system of health and hospital insurance for the people of the state. The proposed amendment would require the inclusion in such program of dental care and routine periodic physical checkups.

New Jersey

Bill Passed.--A. J. Res. 2 passed the senate March 15. It proposes the creation of a commission to make a survey of all voluntary charitable hospitals throughout the state to determine what steps can be taken to relieve existing overcrowding and to furnish additional revenue for operating costs to relieve the burden now being carried by the voluntary charitable hospitals.

New York

Bills Introduced.--A. 2704 proposes the enactment of an amendment to the public health law providing for the organization and operation of a comprehensive statewide system of health insurance. A. 2870 proposes the creation of a state commission to make a study and survey of the prevalence and facilities for the treatment of all forms of heart disease. A. 2878 proposes to make it a misdemeanor for any person to diagnose or treat human ailments by use of hypnotism without first being licensed to practice medicine within the state. A. 2964, to amend the public health law, proposes certain regulations relating to the emergency care and treatment of persons suffering from tuberculosis.

Bills Passed.--A. 2416 passed the assembly March 9. To amend the public health law, it proposes to make it the duty of every physician to give notice to the health officer of his respective county, city town or village of every case of cerebral palsy under his care. A. 2479 passed the senate March 8. To amend the public health law, it proposes to amend the law relating to persons, firms and corporations procuring blood donors so as to eliminate the existing requirement that donors present a satisfactory physical examination showing freedom from communicable disease. The proposal requires instead that the donor comply with the requirements of the state sanitary code or, in New York City, with the city sanitary code. S. 2467 passed the assembly March 10. To amend the education law, it proposes that after July 1, 1949 medical students performing clinical clerkships or similar functions in a legally incorporated hospital shall be exempt from the provisions of the medical practice act

South Carolina

Bills Introduced.--S. 1280, to amend the hospital licensing law, proposes to designate the state board of health as the sole agency for control of and participation in the program for the construction, repair, location and other activities necessary to be carried out in the so-called hospital construction act.

Bills Passed.--H. 1214 passed the house March 10. It proposes to put sulfanilimide, sulfathiazole, sulfapyridine, sulfadiazine, aminopyrine, thyroid and other antifat preparations, together with any other drugs declared to be dangerous drugs, on a prescription basis.

GOVERNMENT SERVICES

ARMY

SYMPOSIUM ON THE PHYSIOLOGY OF ACETYLCHOLINE

A symposium on the physiology of Acetylcholine is to take place at the Army Chemical Center, Maryland, on April 21. The list of principal speakers and the names of the opening discussants are as follows:

1. The Role of Acetylcholine in Conduction. Dr. David Nachmansohn Columbia University College of Physicians and Surgeons. Opening discussant, Dr. Stephen Krop of the Army Chemical Center.
2. Quaternary Ammonium Ions in Nerve Physiology. Dr. R. Lorente de No, Rockefeller Institute for Medical Research. Opening discussant, Dr. Stephen W. Kuffler, Johns Hopkins University.
3. Acetylcholine as a Pharmacologic agent. Dr. Theodore Koppanyi, Georgetown University School of Medicine. Opening discussant, Dr. Chester Darrow, Institute of Juvenile Research.
4. The Mode of Action of Acetylcholine. Dr. J. H. Welsh, Harvard University. Opening discussant, Dr. Amedeo Marrazzi, Wayne University College of Medicine, Detroit.
5. Action of anticholinesterases on the insect central nervous system. Dr. Kenneth D. Roeder, Tufts College, Boston. Opening discussant, Dr. A. M. Harvey, Johns Hopkins University School of Medicine.

Those expecting to attend should notify Dr. H. E. Himwich, Medical Division, Army Chemical Center, Maryland, prior to April 15. Foreign nationals wishing to attend must obtain prior authority through their Embassy.

"VIRUS X" AND INFLUENZA A

The Army's system of watch posts for influenza was explained by Dr. A. F. Rasmussen Jr., of the University of Wisconsin, during a basic science course being given at the Army Medical Research and Graduate School, Washington, D.C. Watch posts were established over a year ago throughout the United States and at key overseas posts to keep a sharp lookout for influenza. The value of the system was illustrated recently in Los Angeles, when a mysterious epidemic labeded "virus X" spread through the city rapidly. Within a few days Capt. Henry Kempe of the Army had demonstrated that the virus responsible for the respiratory phase of the diseases lumped together as "virus X" was influenza virus A, the same strain responsible for the epidemic of January 1947, but different from the influenza virus of 1943 and 1945.

ARMY BUYS BLIND WORKERS' PRODUCTS

The Army announces that it purchased during 1947 products made by blind workers in the United States worth $1,594,128. Under the act of June 25, 1938 the Quartermaster Corps purchases products from the National Industries for the Blind, a nonprofit agency which facilitates the distribution of such products. Among the products made by the blind and purchased for the Medical Department of the Army last year were 47,232 pairs of sterile gloves; 210,448 sterile wrappers and 15,600 surgical drapes. The products are bought under prices and conditions determined by a Committee on Purchase of Blind-Made Products appointed by the President.

CIVILIAN CONSULTANTS TOUR PACIFIC AND EUROPEAN AREAS

The Surgeon General has announced that a team of civilian medical consultants organized to visit Army hospitals in the Pacific area left March 23 for a five week tour of Japan and Korea. Several similar groups are being established by the Medical Department of the Army to facilitate advanced medical training of army doctors overseas. The visiting physicians will advise hospital staffs and the theater surgeon in the treatment of patients, conduct clinics, make ward rounds and give instruction in their various specialties. The Pacific team is composed of Dr. Milton C. Cobey, associate professor of orthopedics at Georgetown University, Dr. Edmund Horgan, surgeon, Winchester, Va., and Dr. Sam A. Overstreet of the faculty of the University of Louisville, Kentucky. Now in Europe is a team under Dr. Seymour J. Rosenberg, associate professor of psychiatry, Georgetown University School of Medicine; Dr. Alexander Marble, instructor in internal medicine, Harvard Medical School, and Dr. Frederick C. Bost, associate clinical professor of orthopedic surgery, University of California.

The following are scheduled to leave for Europe in March: Dr. Harold Scheie, associate professor of ophthalmology, University of Pennsylvania; Dr. Benjamin Balser, of the neurology and psychiatry department, Columbia University, New York; Dr. Burgess L. Gordon, Jefferson Medical College, Philadelphia, and Col. Frank E. Hamilton, chief, surgical service, Walter Reed General Hospital, Washington, D.C.

NAVY

EXAMINATION FOR APPOINTMENT IN REGULAR CORPS

The Department of the Navy announces that examinations for the selection of candidates for appointment to the grade of lieutenant (junior grade) in the Medical Corps of the Navy will be held at naval hospitals May 3 - 7, 1948. Graduates of approved medical schools in the United States or Canada who have completed intern training in accredited hospitals or who will complete such training within four months of the date of the date of the examination, and who are physically and otherwise qualified, are eligible to take the examination. Candidates, who must be less than 32 years of age at the time of appointment, will be required to appear before boards of medical examiners and supervisory naval examining boards at the Naval Hospital nearest their place of residence to demonstrate their physical and professional qualifications for appointment.

Public law 365 of the Eightieth Congress, approved Aug. 5, 1947, provides additional compensation at the rate of $100 a month for each month of active service performed by officers of the Medical Corps of the Navy. This is in addition to any pay, allowances or emoluments that they are otherwise entitled to receive. Information may be obtained from naval officer procurement offices or from the Bureau of Medicine and Surgery, Navy Department, Washington 25, D.C.

VETERANS ADMINISTRATION

VETERANS ADMINISTRATION NEEDS DOCTORS

The thousands of young resident physicians throughout the country should be interested in a new Veterans Administration program for specialty practice in Veterans Administration hospitals for residents who have finished three years of formal training at an outside institution. Under this program, doctors who have completed approved formal residencies in medicine, surgery and neuropsychiatry may complete the qualifications of their specialty board examinations through supervised practice in their chosen specialty as full time employees of the Veterans Administration. Only in these three specialties have there been thus far assurances of approval by the boards. This arrangement is in operation for residents being trained within the Veterans Administration and is now being extended to offer this opportunity to those residents receiving their formal training at other than Veterans Administration institutions.

In general the specialty boards as a whole require that at least 80 per cent of a candidate's practice be devoted to a specialty for at least two years after completion of his three year formal residency training. In no other place in the country, except Veterans Administration hospitals, can a man practice 80 per cent of the time in a specialty immediately after finishing a three year residency.

For this program, standards are similar to those of the American Medical Association. Candidates are required to be citizens of the United States, graduates of approved medical schools in this country or Canada, to have completed an approved internship and three years of approved formal residency training in a chosen specialty. The successful applicants will have full opportunity to obtain the type and amount of specialty practice required of candidates for certification.

At a recent meeting with board representatives in Chicago, the Veterans Administration agreed that in those hospitals where there is not a board-certified, full time Veterans Administration physician to supervise the residents' activities, the Veterans Administration would arrange for a consultant in the appropriate specialty to check on the residents' work at least once a month and serve in a liaison capacity between the American Boards and the resident. In other words, there will be a thorough and complete supervision and guidance of each man's work.

In general, the hospitals which will participate in this plan are not located in cities where teaching institutions are now connected with the Veterans Administration. This is a program which will take specialty training out into the hospitals where there are not close affiliations with medical schools, although all of the supervising consultants will be connected with medical schools. It will present a definite challenge to these men and will provide an opportunity for them to prove their ability in their chosen field. Although the men need not expect to have separate operating crews as their disposal, or all the assistants a chief has, they will be expected to practice good medicine. In some cases, if a man is good, he might even be made chief of his service in a small hospital. At any rate, they will have from five to ten times as many cases in their respective specialties as they would probably have in a private or university hospital under existing conditions. It should also be pointed out that all veterans' neuropsychiatric hospitals have many general medical and surgical beds, which means a wider opportunity and a greater range of cases than might otherwise be expected.

The Veterans Administration is emphatically not a military institution. A man can come in today and resign tomorrow if he so chooses. The hospital program that the agency is trying to develop can become the greatest medical service organization in the world, and is open to suggestions and constructive criticisms at all times. It is hoped that a fair percentage of these physicians will find the service so satisfying that they will want to stay with the Veterans Administration after they have completed their board requirements, at least until they have earned sufficient reputation to cause some medical school or other institution to want them for what they may consider broader fields. The Veterans Administration can offer these men full time staff appointments in the Department of Medicine and Surgery. They will be taken on in junior, associate, full or intermediate grades, depending on their qualifications. They will receive annual salaries of $4149.60 in junior grade, $4902.00 in associate grade, $5905.20 in full grade and $7102.20 in intermediate grade.

As another decided attraction it may be possible to provide quarters at some of the outlying stations at a modest rate. It must be emphasized, however, that this is completely dependent on each local situation. Rent for housekeeping quarters at these stations generally runs from $40 to $57 per month. Where else can a man get quarters for his family at such low costs these days? Where possible, the agency will try to assign these doctors to hospitals of their choice. In all cases their wishes will be given every possible consideration. In other words, this could be considered an ideal opportunity for the young man with a family who wants to complete his training, give the best type of service and at the same time make a living for his family.

This message is addressed particularly to all residents outside the Veterans Administration, which is going to lose some 1400 or 1500 A.S.T.P. and V-12 trained physicians by July 1. For that reason, it is prepared now to accept applications. Candidates should apply well in advance of the date of availability in order to avoid delay in processing. Their applications must be sent directly to the Branch Medical Director of the Veterans Administration branch areas in which they are interested. The thirteen branch offices are located at Boston, New York, Philadelphia, Richmond, Va., Atlanta, Ga., Columbus, Ohio, Chicago, St. Paul, St. Louis, Dallas, Texas, Seattle, San Francisco and Denver. No street addresses are needed. The Veterans Administration is sending out notices to branch medical directors requesting that they appoint someone in their offices to interview each applicant. If there are no places available in the branch to which application is made, each man will be so notified and his application will be forwarded to Washington, D.C., for possible assignment to another area. It should be emphasized that if any applicant does not receive an acknowledgment within a week or ten days, it does not mean that he is not wanted. These things take a little time, and applicants may be assured that we will process each application just as rapidly as possible. The telephone number of these branch offices will be found in the city telephone directory under U. S. Government, Veterans Administration. Applicants should ask for the branch medical director or his designate.

RESIDENCIES AVAILABLE IN NEUROPSYCHIATRY

A limited number of openings are available at this time for July 1, 1948 appointment to the Veterans Administration residency training program in neuropsychiatry, which is under the jurisdiction of the deans of the Boston medical schools (Harvard, Tufts, Boston University). Training in this program, which may be from one to three years, is given at: Cushing Veterans Administration Hospital, Framingham, Mass.; Bedford Veterans Administration Hospital, Bedford, Mass.; the Mental Hygiene Clinic of Boston, Regional Office of Veterans Administration, Boston, West Roxbury Veterans Administration Hospital, West Roxbury, Mass. and White River Junction Veterans Administration Hospital, White River Junction, Vt.

For information write to Chief Neuropsychiatrist, Veterans Administration Branch Office 1, 55 Tremont Street, Boston 8.

UNSETTLED VETERANS' ACCOUNTS

The deputy veterans administrator for the state of New York and for Puerto Rico announced March 1 that $5,000,000 is being held in reserve by the Veterans Administration to pay doctors and dentists for services to veterans for which no bills have been submitted. The deputy administrator requested that those who had completed treatment of veterans authorized by the Veterans Administration request payment immediately. The huge volume of unsettled accounts is said to be a serious threat to the sound operation of the medical care plan for veterans in the state of New York.

PUBLIC HEALTH SERVICE

EXAMINATION FOR REGULAR CORPS

A competitive examination for appointment in the regular corps of the U. S. Public Health Service in the grade of assistant surgeon and senior assistant surgeon will be held April 5-7 at places convenient to the candidate. Applicants who have passed the National Board Examinations may substitute the results for the written portion of the examination. The oral examination will be held at various points throughout the country. Regular Corps appointments are permanent in nature and provide opportunities to qualified physicians for a life career in one or more of a large number of fields. All applicants must be at least 21 years of age and citizens of the United States, must present a diploma of graduation from a recognized medical school and must satisfactorily pass a physical examination performed by officers of the Public Health Service.

Applicants for the two grades must have had at least seven and eleven years, respectively, of educational and professional training or experience, exclusive of high school.

Entrance pay for an assistant surgeon with dependents is $5,011 a year and for senior assistant surgeon with dependents $5,551 a year. Provisions are made for promotions at regular intervals up to and including the grade of senior surgeon (lieutenant colonel) and for selection for promotion to grade of medical director (colonel) at $9,751 a year. Retirement is authorized at either completion of thirty years' service or age 64.

Application forms may be obtained from Public Health Service Hospitals, District office, or by writing to the Surgeon General, U. S. Public Health Service, Washington 25, D. C.

EXAMINATION FOR NURSES FOR THE REGULAR CORPS

The U. S. Public Health Service announces that examinations for the appointment in grades of junior assistant nurse officer, assistant nurse officer and senior assistant nurse officer in its regular commissioned corps will be conducted throughout the country in some twenty cities. The examination consists of an oral interview, which will be held on various dates from May 4 to June 8; a two day written examination, which will be held June 21, 1948, and a physical examination, which will be at the nearest Public Health Service facility and prior to the oral examination, if possible. The salaries for these officers range from $2955.50 to $3915.50. These figures include allowances for quarters and subsistence.

Appointments to the regular corps are permanent, although officers may resign except during time of war or national emergency. Further information can be obtained from the Surgeon General, U. S. Public Health Service, Washington, D. C. Attention: Division of Commissioned Officers.

RESEARCH WORKERS WANTED

The U. S. Public Health Service's National Institute of Health is seeking scientists for full time clinical and laboratory research on cardiovascular diseases in the National Institute of Health's newly established Experimental Biology and Medicine Institute. Blueprints for a five hundred bed research hospital, to be built on the Bethesda, Md., grounds of the National Institute of Health, call for one hundred and fifty beds for patients with cardiac and metabolic disorders. For the present clinical research is being conducted with twenty-five beds for cardiac patients at the Baltimore City hospitals, in collaboration with the National Institute of Health.

LABORATORY COURSE ON PARASITIC DISEASES

The laboratory division of the Communicable Disease Center, 291 Peachtree Street, Atlanta, Ga., is offering three refresher courses for laboratory personnel in the laboratory diagnosis of parasitic diseases on the following dates: January 12-February 20 (class filled); July 12-August 20; October 11-November 19. While these courses are open to all grades of employed laboratory personnel in hospitals and private laboratories, preference is given to applications from those in laboratories of state and local public health departments. There is no tuition or laboratory fee, but travel and living expenses must be paid by the applicant or his employer. Applications should be made as far in advance as possible. Although laboratory directors and senior staff members may attend these courses, it is proposed to schedule later short courses for persons in these categories.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

State Medical Meeting at Mobile.—The Medical Association of the State of Alabama will hold its annual session April 15-17 at the Hotel Admiral Semmes, Mobile, under the presidency of Dr. Jesse P. Chapman, Selma. The following will be guest speakers:

Stanley P. Reimann, Philadelphia, Recent Advances in Cancer Research.
Perry P. Volpitto, Augusta, Ga., Use of Sedatives, Hypnotics and Analgesics in General Practice.
Andrew B. Rivers, Rochester, Minn., Perforating Peptic Ulcer.
Robert L. Bennett, Warm Springs, Ga., Adequate Care of Poliomyelitis.
Virgil S. Counseller, Rochester, Minn., Surgical Treatment of Diverticulitis of the Colon.
Henry C. Poncher, Chicago, Pediatric Hematology in Everyday Practice.
Eugene Stead Jr., Durham, N.C., Studies Using the Technic of Venous Catheterization.
Andrew C. Ivy, Chicago, Gallbladder in Health and Disease.
Louis T. Byars, St. Louis, Common Problems in Plastic Surgery.
Edwin C. Ernst, St. Louis, Management of the Treatment of Cancer of the Cervix.
Frank E. Whitacre, Memphis, Tenn., Diagnosis of Ectopic Pregnancy.
Osler A. Abbott, Atlanta, Ga., Modern Methods in Diagnosis and Treatment of Mediastinal Masses.
John S. La Due, New York, Diagnosis and Treatment of Tumors of the Lymphoid System.
Alexander Hollaender, Ph.D., Oak Ridge, Tenn., Atomic Energy in Its Relation to Biologic Problems.
Champ Lyons, New Orleans, Treatment of Peritonitis with Especial Consideration of Chemotherapy.
Mr. Owen Cooper, Jackson, Miss., Functions of a Public Relations Program.

ILLINOIS

Neuropsychiatric Conference.—A postgraduate conference in neuropsychiatry will be presented at Dixon State Hospital, Dixon, March 31 by the Illinois departments of Public Welfare and Public Health and the Illinois State Medical Society. It is part of an educational program for state hospital physicians and physicians in the general practice of medicine. The program, to begin at 1 p.m., is as follows:

Joseph C. Rheingold, Chicago, The Anxiety State.
Heinz Kohut, Chicago, Psychiatric Consultations in a General Hospital.
William H. Haines, Chicago, The Criminal Psychopath.
David B. Rotman, Chicago, Functions of a Court psychiatrist.
Sophia Schroeder Sloman, Chicago, Fundamentals of Child Psychiatry.
Vladimir G. Urse, Chicago, Interpretation of Revised Mental Health Act.
Roland P. Mackay, Chicago, Common Types of Headache and Their Management.
Lewis J. Pollock, Chicago, Peripheral Nerve Injuries.

Dinner will be served at 6 p.m. at the hospital. The evening speaker will be Dr. William W. Bauer, director of health education for the American Medical Association, "The Nation's Health is Good."

LOUISIANA

Doctor's Day.—March 30 has been designated Doctor's Day in New Orleans by the Woman's Auxiliary of the Orleans Parish Medical Society to show appreciation for their services to the community.

State Medical Meeting. — The annual meeting of the Louisiana State Medical Society will be in Monroe April 12-14 under the presidency of Dr. Gilbert C. Anderson, New Orleans: The House of Delegates will meet Monday. At the public meeting Monday night Dr. Morris Fishbein, Chicago, will speak on "A Century of Medical Progress" and Dr. James E. Ayre, Montreal, Canada, will speak. Tuesday's program is made up of two symposiums, one in the morning on cancer and another in the afternoon on medical diseases of the kidney. Guest speakers will be: Dr. Ira T. Nathanson, Boston, "Influence of Sex Hormones and Castration on Advanced Cancer of the Breast and Prostate," and Harry S. N. Greene, New Haven, Conn., 'Clinical Application of in Vivo Tissue Culture." Five sectional meetings have been arranged for Wednesday. Guest speakers will be: John E. Faber, Rochester, Minn., "Experiences with Anticoagulants in Postpartum Patients"; Frank R. Lock, Winston-Salem, N.C., "Maternal Mortality in the South"; William F. Guerriero, Dallas, Texas, "Gyn-Like Complaints"; W. Ambrose McGee, Richmond, Va., "Advantages of Early Recognition and Treatment of Allergic Disorders in Infancy and Childhood"; George B. Eusterman, Rochester, Minn., "Newer Aspects of the management of the Peptic Ulcer Patient" and Herbert L. Mantz, Kansas City, Mo., "Diagnosis of Tuberculosis."

A roundtable discussion, "Vagotomy: Its Surgical and Medical Aspects," will close the program. The President's Reception will be held at 8 p.m. April 13.

MASSACHUSETTS

Tufts Alumni Dinner. — The Tufts Medical Alumni Association will hold its annual dinner meeting on Wednesday evening, April 7, at the Hotel Somerset, Boston. The guest speaker will be Admiral Luis de Florez, Sc.D., New York, who will talk on "New Engineering Developments in the Science of Medicine."

Harvard to Study Family Life. — The Harvard School of Public Health has appointed the first social worker to its faculty, as part of a new program to study the role of family life in the health of children. Miss Elizabeth P. Rice, clinical professor of the social aspects of medicine at the Yale University School of Medicine, will become assistant professor of medical social work in the department of maternal and child health at Harvard. The new program will emphasize the role of the family in preventing the development of undesirable social habits in children and in discovering unfavorable social factors as they relate to the health of the family.

NEW YORK

Graduate Lectures. — The Medical Society of the State of New York with the cooperation of the New York State Department of Health has arranged graduate instruction for the Madison County Medical Society at the Hotel Oneida, on Thursdays at 8:30 p.m. Dr. Raymond J. Pieri, Syracuse, on April 15 will speak on "Operative Deliveries: the Occipitoposterior Position — Illustrated with Moving Pictures." On April 22 Dr. William J. McNerney, Syracuse, will speak on 'Problems in Physical Diagnosis."

The Hudson County Medical Society in cooperation with Rutgers University will bring six weekly lectures to Jersey City Medical center on Friday afternoons at 4 o'clock beginning April 2. The registration fee is $4. The schedule of lectures is as follows:

April 2, Irving S. Wright, New York, *Use of Anti Coagulant Drugs in Diseases of the Heart and Blood Vessels.*

April 9, Edward Weiss, Philadelphia, *Psychotherapy in Medical Practice.*

April 16, George W. Lewis, New York, *What's New in Dermatology?*

April 23, John H. Garlock, New York, *Recent Advances in Gastrointestinal Surgery.*

April 20, Byron P. Stookey, New York, *Indications for Surgery in Diseases of the Nervous System.*

May 7, Leslie O. Ashton, New York, *Etiology and Treatment of Nutritional Anemias in Infancy and Childhood.*

New York City

Measles Epidemic.—The City of New York Department of Health reported March 4 that cases of measles in the city almost doubled in February, when 3,351 cases were reported as against 1,717 in January. By March 1 a total of 5,068 cases had been reported.

United Hospital Fund Exceeds Goal.—Receipts from the 1947 campaign of the United Hospital Fund of New York were reported to be $4,388,672, nearly $5,000 more than its goal. The fund, which aids eighty-nine voluntary nonprofit hospitals, reports that 20,000 new contributors were added to its roll during the campaign.

Course on Rheumatic Fever.—St. Francis Sanatorium for Cardiac Children, Roslyn, Long Island, has announced a postgraduate course in rheumatic fever and rheumatic heart disease at the Sanatorium from June 1 to 15, 1948. Fee for the course is $75. Applications should be submitted before May 1 directly to the sanatorium.

Report of Greater New York Fund.—The annual report of the Greater New York Fund, issued February 23, showed the distribution of $4,136,419 among four hundred and twenty-three local hospital, health and welfare agencies in 1947. When the fund begins its 1948 campaign April 26, it will seek $14,000,000 to maintain the service of the organization's agencies.

Course for Men Student Nurses.—The first class of men student nurses since September 1942 was admitted by the Mills School of Nursing for Men of the Bellevue Hospital School of Nursing, March 31. This first class can accommodate thirty students, but the September class will number forty. The Mills School of Nursing for Men, established in 1888, became part of the Bellevue School in 1929 and was affiliated with the division of nursing of the New York University College of Medicine in 1942.

Spanish-Speaking Physicians Association.—The International Spanish-Speaking Association of Physicians will present at a meeting at the Waldorf Astoria Hotel March 31, a symposium on scientific surgical and medical films in sound and color. Frank Lahey, Boston, will discuss cancer of the rectum; Alton Ochsner, scaleniotomy for the cervical rib, and J. D. Ullery, cesarean delivery of quadruplets. A Spanish film on the blood in pernicious anemia also will be presented. On May 6 a banquet will be held at the Waldorf Astoria in honor of Dr. J. M. Gershberg in recognition of his completion of twenty years as president of the International Spanish-Speaking Association of Physicians and as its founder. Among the speakers at the banquet will be Dr. Ricardo Alfaro, former president of Panama, and Dr. Alton Ochsner, New Orleans. For tickets ($10 per person) write to the treasurer, Dr. Constantine N. Logotheti, 226 West Seventieth Street, New York.

Dr. Houssay Gives Wyckoff Lectures.—The annual John Wyckoff lectures at New York University College of Medicine were delivered February 16 and 17 by Dr. Bernardo A. Houssay, a 1947 Nobel prize winner and director, Institute of Biologic Research, Buenos Aires, Argentina. Dr. Houssay spoke on carbohydrate metabolism and diabetes, devoting the first lecture to "The Role of the Hypophysis in Carbohydrate Metabolism and Diabetes" and the second to "Alloxan Diabetes." This year's lecture series was the tenth to be given under the John Wyckoff Lectureship established by the Phi Delta Epsilon fraternity. A reception and tea in honor of Dr. Houssay was held in the study of Dean Currier McEwen following the first lecture.

PENNSYLVANIA

State Clinical Pathologists. — The Pennsylvania Association of Clinical Pathologists will hold their spring meeting at Pocono Manor, Penn., April 23-25 under the presidency of Dr. Frederick O. Zillessen, Easton. Papers to be presented will include "What the Clinical Pathologist Should Know About Atomic Energy," "Discourse on Thyroid Pathology," "Moulage Preparations of Specimens" and "Work of the State Laboratories."

PHILADELPHIA

Alumni Dinner.—A special Jefferson Medical College alumni dinner will be held June 23 at 6:30 p.m. during the convention of the American Medical Association in Chicago. The dinner will be at the Sheraton Hotel, 505 North Michigan Avenue. Alumni planning to attend are urged to register in advance by sending their checks for $5 to Dr. William W. Bolton, 535 North Dearborn Street, Chicago 10.

Pittsburgh

Stewart Memorial Lecture.—The R. W. Stewart Memorial Lecture will be given at the rooms of the Pittsburgh Academy of Medicine April 13 by Dr. Lester R. Dragstedt, Chicago, who will speak on "Gastric Vagotomy in the Treatment of Peptic Ulcer."

WISCONSIN

Personal.—Dr. Harry M. Guilford, Madison, epidemiologist of the Wisconsin State Board of Health since 1921, retired January 21.

Surgical Society Meeting.—Dr. Nathan A. Womack, St Louis, was the guest speaker before the Wisconsin Surgical Society in Milwaukee February 14. The morning program consisted of operative clinics at the Veterans Administration Hospital, Wood, and the Milwaukee County Hospital, as well as a dry clinic conducted at the Milwaukee Children's Hospital.

Industrial Health Clinics.—Six counties in the industrialized areas of the state are conducting industrial health clinics developed by committees of various county medical societies, the state medical society and state board of health. On March 31 an afternoon visit to the Fairbanks-Morse plant at Beloit will be followed by a dinner meeting for physicians, industrial nurses, insurance carriers, representatives of management and labor. On April 15, Outagamie and Winnebago Counties will carry on a similar program at the Kimberly-Clark mill at Neenah. Racine and Kenosha Counties on April 21 are conducting a clinic in Racine, and on May 6 a clinic is planned for Dane County. Physicians who are not located in any of the counties serving as hosts for the clinics and who wish to attend may communicate with the State Medical Society, 917 Tenney Building, Madison 3, for details.

GENERAL

Public Health Nursing Week.—The fourth National Public Health Nursing Week, sponsored by the National Organization for Public Health Nursing, will be celebrated April 11-17. The campaign this year will center attention on the importance of community cooperation in public health nursing. The two major objectives are (1) to make the work of the public health nurse known to every person in the United States and (2) to recruit to this branch of nursing an increasing number of young women.

Serum Globulin Available for Treatment of Measles.—Dr. Ross T. McIntire, administrator of the American Red Cross National Blood Program, is reported to have said that thousands of vials of immune serum globulin are available for distribution among physicians, hospitals and clinics to combat measles, which is present in epidemic form in some parts of the country. In January and February 85,790 vials were distributed. When the supply of Army-Navy surplus plasma, from which globulin is fractionated, is exhausted, blood which is being donated to the American Red Cross will be used to meet the demand.

Fellowships in Hematology.—The Hematology Research Foundation invites applications for the Ruth Reader Fellowship and the Robert L. Goldblatt Fellowship for research in blood diseases in the academic year 1948-1949. The stipend for each fellowship is $1,500 per year with the option to renew. This offer is made to workers of any race, creed or color in the United States. Applications must be submitted not later than April 15 to Hematology Research Foundation, 72 East Eleventh Street, Chicago 5. Eight copies of the application are requested. Awards will be announced by the Medical Advisory Council in May 1948. The council will choose the institution in Chicago in which the work is to be done.

Gibbs Prize for Research. — The New York Academy of Medicine announces that $2,000 is available under the Edward N. Gibbs Memorial Prize for original research in diseases of the kidney during 1948. Candidates must be physicians who were graduated at least three years ago and are residents of the United States. They must submit evidence of research already performed and of facilities to prosecute research on the causation, pathology and new methods of treatment of diseases of the kidney. Applications should be addressed prior to April 15 to the chairman, Dr. Walter W. Palmer, Gibbs Prize Committee, Public Health Research Institute of the City of New York, William Hallock Park Laboratory, Foot of East Fifteenth Street, New York 9.

Tri-State Medical Meeting.—The Northern Tri-State Medical Association, representing Indiana, Ohio and Michigan, will hold its annual meeting in Findlay, Ohio, April 13 under the presidency of Dr. Oscar P. Klotz, Findlay, Ohio. On the program will be Captain George N. Raines (MC), U.S.N., Bethesda, speaking on the depressive syndrome in general practice: Herbert D. Adams, Boston, general review of thoracic surgery: Plinn F. Morse, Detroit, clinical pathologic conference; Thomas E. Jones, Cleveland, resumé of surgical treatment of peptic ulcer; C. Wesley Eisele, Chicago, diagnosis and treatment of brucellosis, and Dallas B. Phemister, Chicago, treatment of ununited fractures. The luncheon address will be given by Dr. Roscoe L. Sensenich, South Bend, Ind., President-Elect of the American Medical Association.

Grants For Research in Reproduction.—The Committee on Human Reproduction of the National Research Council, acting for the National Committee on Maternal Health, Inc., will entertain application for research in the field of reproduction. Applications to become effective July 1 will be received until May 1; applications to become effective October 1 will be received until August 1. For 1948-1949, the committee will place emphasis on investigations of the factors controlling conception, fertility and sterility, but other fields of endeavor will be supported if projects of special significance are presented. The National Committee on Maternal Health has advised the National Research Council that it proposes to solicit funds to finance the program of research recommended by the Committee on Human Reproduction to an amount of about $200,000 for 1948-1949. Communications regarding grants should be addressed to the Committee on Human Reproduction, National Research Council, 2101 Constitution Avenue N.W., Washington 25, D.C.

Morning lectures will be given on Wednesday and Friday and panel discussions will be held from 12 to 1:15 p.m. beginning Tuesday. The annual convocation will be at the Fairmont Hotel, 8:30 p.m. Wednesday. Dr. Alan Gregg, New York, will speak on "The Golden Gate of Medicine" and Frederick P. Woellner, LL.D., Los Angeles, on "A Philosophy of Trouble" at the banquet at the Fairmont Hotel, 8 p.m. Thursday.

College of Physicians Meeting in San Francisco.—The American College of Physicians will hold its annual session in San Francisco April 19-23, with headquarters at the Civic Auditorium, under the presidency of Dr. Hugh J. Morgan, Nashville, Tenn. The opening scientific address will be the James D. Bruce lecture on preventive medicine, "The Challenge of Preventive Medicine," to be delivered by Dr. James S. Simmons, Boston. Those to address the general sessions by invitation include the following:

Karl A. Menninger, Topeka, Kan., Revisions in in the Concept of Disease.
Hans Selye, Montreal, Canada, The Alarm Reaction and the Diseases of Adaptation.
Stewart G. Wolf Jr., New York, Hypertension as a Reaction to Situational Threats.
John H. Lawrence, Berkeley, Calif., Radioactive Isotopes in Medicine.
Stafford L. Warren, Los Angeles, Medical Aspects of Radiation Sickness.
Ernest W. Goodpasture, Nashville, Tenn., The John Phillips Memorial Lecture: Intracellular Environment for Infectious Agents.
Herbert M. Evans, Berkeley, Calif., Anterior Pituitary Hormones.
Mayo H. Soley, San Francisco, Radioactive Iodine and Hyperthyroidism.
Charles E. Smith, San Francisco, Pathogenesis of Coccidioidomycosis.
William S. Tillett, New York, Empyema: Factors Involved in Recovery Following Local Penicillin Therapy.
Norman E. Freeman, San Francisco, Retrograde Arteriography in Diagnosis of Cardiovascular Lesions.
Robert W. Wilkins, Boston, Hemodynamic Effects of Sympathectomy.
Charles F. Wilkinson Jr., Ann Arbor, Mich. Essential Familial Hypercholesterolemia.
Herman L. Blumgart, Boston, Clinical Aspects of the Acute Episode in Coronary Disease.
Myron Prinzmetal, Los Angeles, Coronary Artery Occlusion in Man and Animals Studied by Radio-Isotopes.

Deaths

Clark Moore Johnson San Francisco; born in Normal, Ill.; Nov. 3, 1898; University of California Medical School, San Francisco, 1924; clinical professor of urology at his alma mater; specialist certified by the American Board of Urology, Inc.; member of the American Urological Association; fellow of the American College of Surgeons; an army air cadet during World War I; served in the medical corps of the U. S. Naval Reserve during World War II; affiliated with the Franklin and San Francisco City and County hospitals; chief consultant in urology at the Veterans Administration, 12th District; and of the Bureau of Medicine and Surgery, United States Navy; died January 18, aged 49, of coronary occlusion.

Charles Benjamin Coggin ⊕ Los Angeles; born in Lincoln, Neb., May 12, 1907; College of Medical Evangelists, Loma Linda, 1935; diplomate of the National Board of Medical Examiners; assistant clinical professor of medicine at his alma mater; specialist certified by the American Board of Internal Medicine; an associate of the American College of Physicians; affiliated with the White Memorial and Los Angeles County hospitals; served as an officer in the medical corps, Army of the United States overseas during World War II; died in the University of California Hospital, San Francisco, January 10, aged 40, of glioblastoma.

Pinckney Harral ⊕ San Francisco; born in St Louis, June 22, 1907; Northwestern University Medical School, Chicago, 1933; clinical instructor in orthopedic surgery at the University of California Medical School; affiliated with the University of California and Franklin hospitals; specialist certified by the American Board of Orthopaedic Surgery, Inc.; member of the American Academy of Orthopaedic Surgery; served in the medical corps of the U. S. Naval Reserve during World War II; died January 4, aged 40, of burns received while extinguishing a fire at his home in Mesa, Ariz.

William Murray Ennis, Brooklyn; born in Brooklyn June 19, 1888; University School of Medicine, New York, 1910; member of the American Medical Association; fellow of the American College of Surgeons; served during World War I; formerly assistant clinical professor of surgery at the Long Island College of Medicine; consulting surgeon, Kings County Hospital; on the courtesy staffs of the French Hospital and St. Peter's Hospital, where he died Dec. 26, 1947, aged 59, of fracture of the right femur and bronchopneumonia.

John Henry Graves ⊕ San Francisco; born Oct. 6, 1867; Cooper Medical College, San Francisco, 1896; past president of the California State Medical Association and of the San Francisco County Medical Society; past president of the state board of health; member of the House of Delegates of the American Medical Association in 1921; served as medical director of the state industrial accident commission and state compensation insurance fund; affiliated with St. Francis Hospital; died January 9, aged 80, of carcinoma of the bladder.

Willis Orville Nance ⊕ Chicago; Bellevue Hospital Medical College, New York, 1893; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; at one time alderman and trustee of the sanitary district; a member of the "Fifty Year" Club of the Illinois State Medical Society; formerly a member of the staffs of the Illinois Eye and Ear Infirmary and the Cook County Hospital; died in St. Vincent's Hospital, Los Angeles, January 16, aged 76, of pneumonia.

William J. Adamson, Lincoln, Neb.; Lincoln Medical College of Cotner University, 1903; died January 3, aged 85, of arteriosclerosis and hypostatic pneumonia.

Anson C. Alexander, Penacook, N.H.; Hahnemann Medical College and Hospital of Philadelphia, 1881; member of the American Medical Association; died January 3, aged 92.

J. Lloyd Alexander, Winnett, Mont.; the Hahnemann Medical College and Hospital, Chicago, 1893; member of the American Medical Association; formerly on the faculty of the Southwest School of Medicine and Hospital in Kansas City, Mo.; died January 1, aged 79, of heart disease.

William P. Alexander, Gary, Ind.; Eclectic Medical Institute, Cincinnati, 1891; died in Mercy Hospital Dec. 17, 1947, aged 90.

Warren W. Alger, Algonac, Mich. (licensed in Michigan in 1903); died in November 1947, aged 82.

Oscar Allen, Rosemead, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; died in January, aged 80.

Charles Grant Augustus, Dayton, Ohio, Ohio State University College of Medicine, Columbus, 1914; affiliated with the Dayton State Hospital, where he died January 4, aged 59, of heart disease.

James Van Horne Ballantyne ⊕ Wilkinsburg, Pa.; University of Pennsylvania School of Medicine, Philadephia, 1909; fellow of the American College of Surgeons; affiliated with the Pittsburgh Hospital and the Columbia Hospital; died January 7, aged 65.

James Glen Beattie, Evansville, Ill.; Barnes Medical College, St. Louis, 1898; died January 14, aged 82.

Albert Francis Bina ⊕ St. Louis; National University of Arts and Sciences Medical Department, St. Louis, 1915; affiliated with Lutheran Hospital, Alexian Brothers Hospital and St. Anthony's Hospital, where he died January 14, aged 63, of hypertensive heart disease.

William Haller Cassell , Wytheville, Va.; Medical College of Virginia, Richmond, 1905; died Nov. 26, 1947, aged 68, of carcinoma.

Charles Joseph Cavanagh , Philadelphia; Jefferson Medical College of Philadelphia, 1899; also a graduate in pharmacy; served during World War I; for many years associated with the city bureau of health and board of education. Died Dec. 15, 1947, aged 73, of cerebral hemorrhage.

William Rufus Chittick, Spring Valley, Calif.; Long Island College Hospital, Brooklyn, 1882; member of the American Medical Association and of the Michigan State Medical Society; at one time practiced in Detroit, where he was president of the Detroit Academy of Medicine, clinical professor of medicine at the Detroit College of Medicine and on the staffs of the Harper and St. Mary's hospitals; died Dec. 25, 1947, aged 89, of heart disease.

Morris Alfred Darbyshire McComb, Ohio; Starling Medical College, Columbus, 1790; for many years a member of the board of education; died Dec. 30, 1947 aged 84, of senility.

Littleton Davis, Roanoke, Va.; University College of Medicine, Richmond, 1909; died January 14, aged 66, of coronary thrombosis.

Maurice F. Doty ⊕ Chicago; College of Physicians and Surgeons of Chiaago, 1895; died in the Cook and Surgeons of Chicago, 1895; died in the Cook County Hospital January 4, aged 82 of injuries received in a fall

Thomas Francis Doyle Chicago; Rush Medical College, Chicago, 1904; member of the staff of the Woodlawn Hospital, of which he had been one of the founders; died January 16, aged 65, of coronary thrombosis.

Roman W. Drostenfels ⊕ Sierra Madre, Calif.; National Medical University, Chicago, 1903; member of the Illinois State Medical Society; died Dec. 30, aged 71.

Orla Andrew Druce, Albany, N.Y.; Albany Medical College, 1909; formerly physician for the New York Central Railroad; died January 15, aged 67, of diabetes mellitus, arteriosclerosis and coronary thrombosis.

Charles Francis Durning, Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1898; member of the American Medical Association; served as medical superintendent of the Coney Island Hospital; died January 14, aged 77.

Henry Edelstein, Cleveland; University of Wooster Medical Department, Cleveland, 1900; also a druggist; died January 1, aged 75, of sarcoma.

Stanley Burt Ellis, Wakefield, Va.; Medical College of Virginia, Richmond, 1903; died in the Petersburg (Va.) Hospital January 2, aged 66, of coronary occlusion.

William Joseph Finnerty, Scranton, Pa.; Jefferson Medical College of Philadelphia, 1925; member of the American Medical Association; served on the staffs of the Mercy, West Side and St. Mary's Hospitals; died Nov. 27, 1947, aged 49, of congestive heart failure.

Virgil Ward French, Riley, Ind.; Indiana University School of Medicine, Indianapolis, 1921; member of the American Medical Association; died in St. Anthony Hospital, Terre Haute, Dec. 9, 1947, aged 56, of paralysis agitans, encephalitis and myocarditis.

Herman C. Frick, Evansville, Ind.; Louisville (Ky.) Medical College, 1900; served as city and county health officer; died Dec. 4, 1947, aged 68, of coronary thrombosis.

Maynard Arthur Froney, Sheboygan, Wisconsin; Milwaukee Medical College, 1904; served overseas during World War I; died Nov. 25, 1947, aged 72.

Walter S. Galloway, Henderson, Ky.; Barnes Medical College, St. Louis, 1897; served on the staff of the Henderson Hospital; died January 1, aged 83, of cerebral hemorrhage.

Cecil Hubert Gibson, South Bend, Ind.; Meharry Medical College, Nashville, Tenn., 1916; died in St. Joseph Hospital, Dec. 22, 1947, aged 59, of cerebral hemorrhage.

Dove Walter Green, Conway, S. C.; Medical College of the state of South Carolina, Charleston, 1912; member of the American Medical Association; served during World Wars I and II; died in the United States Naval Hospital, Charleston, January 16, aged 60, of carcinoma

George A. Green, Nashville, Ill.; St. Louis College of Physicians and Surgeons, 1906; for many years county coroner; member of the American Medical Association; died January 6, aged 70, of cerebral hemorrhage.

Royal Graves Hamilton, Alderwood Manor, Wash.; Rush Medical College, Chicago, 1892; died January 3, aged 88.

Herman P. Harder, Newaygo, Mich.; Northwestern University Medical School, Chicago, 1897; died Nov. 4, 1947, aged 79, of heart disease.

Lexius Henson Harper, Aiken, S. C.; College of Physicians and Surgeons, Boston, 1899; died in Columbia Dec. 9, 1947, aged 71, of lobar pneumonia.

Harold H. Hartley, Terrace, Pa.; University of Maryland School of Medicine, Baltimore, 1903; died January 7, aged 70, of heart disease.

Richard Tullar Henderson, Urbana, Ohio; Starling Medical College, Columbus, 1900, past president of the Champaign County Medical Society; on the staff of the Champaign County Hospital; died January 1, aged 71, of coronary thrombosis.

Caroline Lunetta Hilborn, Robbins, N. C.; Cleveland-Pulte Medical College, 1913; member of the American Medical Association; died recently, aged 81.

Guilford Bert Hoiston, Columbus, Ohio, Ohio State University College of Medicine, Columbus, 1938; mem- of the American Medical Association; served during World War II; affiliated with the University Hospital, White Cross Hospital and the Grant Hospital, where he died January 14, aged 38, of burns received in a gas furnace explosion at his home on Dec. 26, 1947.

Theron Howard Huckins, Tilton, N.H.; Dartmouth Medical School, Hanover, 1902; member of the American Medical Association; affiliated with the Franklin (N.H.) Hospital, where he died January 2, aged 74, of a cerebral accident.

Thomas Willard Kenneth Hume ⊕ Auburn Heights, Mich.; University of Toronto Faculty of Medicine, Toronto, Canada, 1925; served on the staffs of St. Mary's, Herman Kiefer and Henry Ford hospitals in Detroit; died in St. Joseph Mercy Hospital, Pontiac, January 4, aged 46.

Elizabeth Mowat Johnson, Staunton, Va.; Wayne University College of Medicine, Detroit, 1941; served as clinical assistant of psychiatry at the Woman's Medical College of Pennsylvania in Philadelphia; resident physician at the Western State Hospital; died in St. Petersburg, Fla., January 2, aged 39.

Charles P.F. Joyce, Derry Village, N.H.; Dartmouth medical School, Hanover, 1893; died recently, aged 81.

Frank Everts Kellner, Rome, N.Y.; Cornell University Medical College, New York, 1924; diplomate of the National Board of Medical Examiners; served during World War I; died in the Rome Hospital Dec. 25, 1947, aged 51, of cirrhosis of the liver.

Robert Henderson Lewis, Wildie, Ky.; Tennessee Medical College, Knoxville, 1895, member of the American Medical Association; died in the Berea (Ky.) College Hospital Dec. 30, 1947, aged 78.

Jesse Polk Lockhart ⊕ Brady, Texas; Fort Worth School of medicine, Medical Department of Texas Christian University, 1915; served during World War I; died in San Antonio recently, aged 56.

Charles Leverne Macgray Needham, Mass.; Tufts College Medical School, Boston, 1914; member of The New England Pediatric Society; affiliated with the Leonard Morse Hospital, Natick, Newton (Mass.) Hospital and Glover Memorial Hospital; died Dec. 25, 1947, aged 67, of carcinoma of the lungs.

Solomon L. McPherson, Washington, Ind.; Kentucky School of Medicine, Louisville, 1882; member of the American Medical Association; served as state representative and as mayor of Washington; died in Daviess County Hospital Dec. 31, 1947, aged 88.

Arthur Friedrich Marum, New York; Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg, Baden, Germany, 1907; member of the American Medical Association; died recently, aged 64, of coronary thrombosis.

Clarence E. Matlock ⊕ St. Louis; St. Louis University School of Medicine, 1904; served during World War I; affiliated with the Alexian Brothers and St. John's hospitals; died Dec. 30, 1947, aged 64, of aneurysn of the abdominal aorta.

William Jackson Miller ⊕ St. Louis; Marion-Sims college of Medicine, St. Louis, 1892; on the staffs of St. Anthony's, Lutheran and De Paul hospitals; died Dec. 31, 1947, aged 78.

John Wesley Pennington, Pine Bluff, Ark. (licensed in Arkansas in 1904); died Dec. 29, 1947.

Jonathan Bennett Perrine, Grove City, Pa.; past member of the American Medical Association; Medico-Chirurgical College of Philadelphia, 1912; president of the Mercer County Medical Society, of which he had been secretary for many years; served as deputy coroner; died in Akron, Ohio Dec. 24, 1947, aged 58, of coronary thrombosis.

Frederick John Pohle ⊕ Madison, Wis.; University of Michigan Medical School, Ann Arbor, 1934; associate professor of medicine at the University of Wisconsin Medical School; member of the Central Society for Clinical Research; affiliated with the Wisconsin General Hospital; served during World War II; died Nov. 26, 1947 aged 41, of subarachnoid hemorrhage.

John W. Price, Louisville, Ky.; Kentucky School of Medicine, Louisville, 1897; died recently, aged 70, of chronic myocarditis.

Thomas Kevin Reeves ⊕ Pittsburgh; Georgetown University School of Medicine, Washington, D.C., 1925; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; fellow of the American College of Surgeons; served on the staffs of the Pittsburgh and Women's hospitals; died at Dodge City, Kan., Dec. 28, 1947, aged 47.

Lawrence Weldon Rowell, Western Springs, Ill.; Rush Medical College, Chicago, 1900; died January 2, aged 76, of carcinoma of the prostate.

Otto Sasse, Toledo, Ohio; Boston University School of Medicine, 1878; died Nov. 28, 1947, aged 92, of coronary occlusion.

George A. Snyder ⊕ Altoona, Pa.; Jefferson Medical College of Philadelphia, 1928; served during World War II; affiliated with the Mercy Hospital; died Nov. 18, 1947, aged 47, of heart disease.

Jeanne Cady Solis, Ann Arbor, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; member of the American Medical Association; died in the Mercywood Neuropsychiatric Hospital Dec. 18, 1947, aged 80, of senility.

William Thompson Stafford, Madison, Wis.; University of Wisconsin Medical School, Madison, 1942; interned at Kansas City General Hospital in Kansas City, Mo., where he served a residency at Kansas City Municipal Tuberculosis Hospital; served on the faculty of the University of Wisconsin; member of the American Medical Association; died Dec. 16, 1947, aged 34.

John Henry Terrell ⊕ Toccoa, Ga.; Atlanta College of Physicians and Surgeons, 1901; formerly mayor of Toccoa and city councilman; affiliated with the county board of health; on the staff of the Stephens County Hospital; died Nov. 19, 1947, aged 69, of heart disease.

William Lincoln Thompson, Bayard, Iowa; Rush Medical College, Chicago, 1894; member of the American Association, died in St. Vincent's Hospital, Los Angeles, Dec. 16, 1947, aged 85, following a prostatectomy.

Adolph Nicholas Thoms ⊕ Cedar Falls, Iowa; John A. Creighton Medical College, Omaha, 1916; served during World War I; died Dec. 15, 1947, aged 55.

George Montgomery Trezevant, Monroe, La.; Louisville (Ky.) Medical College, 1901; died Nov. 13 1947, aged 68, of bronchopneumonia.

Landon Davies Walker, Charlotte, N. C.; Medical College of Virginia, Richmond, 1908; member of the American Medical Association; died Dec. 1, 1947, aged 64, of heart disease.

Lindsay O. Walters ⊕ Muncie, Ind.; St. Louis College of Physicians and Surgeons, 1899; served on the staff of Ball Memorial Hospital; died in Winter Park, Fla., Dec. 27, 1947, aged 74, of coronary thrombosis.

Elizabeth F. Collins Whitehead, Ingleside, Va.; Woman's Medical College of Pennsylvania, Philadelphia, 1899; member of the American Medical Association; died Nov. 27, 1947, aged 73.

Louis Gilbert Wehrle ⊕ Chicago; Bennett Medical College, Chicago, 1913; medical examiner for the Metropolitan Life Insurance Company; died January 13, aged 67, as the result of a fall on the ice.

DIED WHILE IN MILITARY SERVICE

John Dibble ⊕ Lieutenant Colonel, M. C., U. S. Army; born in Camden, N. J., May 24, 1890; University of Pennsylvania School of Medicine, Philadelphia, 1915; fellow of the American College of Physicians; commissioned as a first lieutenant in the medical corps of the regular U. S. Army in January 1917; promoted through the various grades to that of Lieutenant Colonel in January 1937; completed the course at the Army Medical School in Washington, D. C., in 1917, the advanced course at the Medical Field Service School, Carlisle Barracks, Pa., in 1934 and was graduated from the Command General staff School in 1938; later assigned to duty at Fort Slocum, N. Y.; an honor graduate of the School for Flight Surgeons in 1919 and later assigned to the Office of the Chief of Air Service, Washington, D. C.; from September 1920 to May 1922 served with the American forces in Germany; on his return to the United States became chief of the tuberculosis section, first at Walter Reed General Hospital, Washington, and later at Letterman General Hospital in San Francisco; died Feb. 7, 1943, aged 52, as the result of an airplane accident in the Pacific area, where he had been on active duty.

Tom Titian Flaherty ⊕ Lieutenant Commander, M. C., U. S. Navy, Long Beach, Calif.; University of Southern California School of Medicine, Los Angeles, 1939; appointed to the medical corps of the U. S. Navy as a lieutenant (jg) in July 1938; interned at the United States Naval Hospital in San Diego; served as flight surgeon during World War II at the U. S. Naval Air Station, Corpus Christi, Texas, and with the Second Marine Air Wing, Fleet Marine Force; awarded the Silver Star Medal for conspicuous gallantry and intrepidity in action and the Air Medal for meritorious achievement in aerial flight as crew member; died April 11, 1945, aged 36, as a result of an airplane crash at Okinawa Shima, Ryukyu.

Jesse Raymond Battenfeld ⊕ Lieutenant, Medical Corps, U. S. Navy, Kansas City, Mo.; University of Pennsylvania School of Medicine, Philadelphia, 1941; interned at the Hospital of the University of Pennsylvania; diplomate of the National Board of Medical Examiners; appointed a lieutenant (jg) in the medical corps of the U. S. Navy in October 1942; served as a flight surgeon during World War II at the U. S. Naval Air Station, Pensacola, Fla., and in Fighting Squadron 51, U. S. S. San Jacinto; died Feb. 15, 1945, aged 29, in an airplane accident in Kittitas County, Washington.

John Robert Davenport, Holdenville, Okla.; University of Arkansas School of Medicine, Little Rock, 1933; interned at the U. S. Marine Hospital in New Orleans and the Deaconess Hospital in Cincinnati, where he served a residency; entered the medical reserve corps of the U. S. Army in May 1934; promoted to the rank of captain on April 13, 1939, while on inactive status; entered the medical corps, Army of the United States, in August 1940; promoted to major and lieutenant colonel; stationed at the Enemy Alien Internment Camp at Huntsville, Texas, where he died Nov. 21, 1943, aged 39.

John James McNulty, Los Angeles; College of Medical Evangelists, Los Angeles, 1945; interned at the Naval Hospital in Oakland; diplomate of the National Board of Medical Examiners; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve in June 1945; died in Hawaii Dec. 2, 1945, aged 26.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Mar 15.1948

THE RESULT OF THE PLEBISCITE

The result of the plebiscite of the whole profession on the National Health Service, taken by the British Medical Association, has been declared. As anticipated, disapproval was registered by an overwhelming majority on a poll of 84 per cent of members. Against the act in its present form 40,814 votes were cast, with 4,084 in favor of it. In every branch of the profession the voting was against the scheme generally by an immense majority. In no single category of fourteen groups was there a majority in favor of the act. The nearest the service came to acceptance was among the group of whole time research workers, where two to one registered disapproval. Even the doctors who have chosen a permanent career in the forces disapproved by sixteen to one. This is noteworthy, for these men have ample experience of control by government, the feature of the act to which the profession most objects. The same is shown by the fact that six of every seven doctors in full time government employ are opposed to the act. Similarly the health officers (who are in full time employment, and who some years ago issued a report in favor of making all physicians salaried officials) having examined the matter further and having studied the implications of the present scheme, voted against it six to one. Of general practitioners, 17,626 disapproved of the act. This makes a majority of 92 per cent in the cases of principals and 88 per cent in the case of assistants.

Commenting on the result, the *British Medical Journal* says that a heavy responsibility now lies with the association not only to the medical profession but to the community generally, which has been given the most exaggerated idea of the medical benefits to be derived from the act.

The *Lancet*, which has always advocated acceptance of the act but with modifications to meet the profession's objections, says that the magnitude of the victory will be a source of strength to the leaders of the British Medical Association and continues:"We do not yet know just what their objective is, or how they intend to use it But if they wish to avoid needless conflict and are prepared to enter into negotiations with the government to that end, the plebiscite gives them a strong position from which to do so. On the other hand, the existence of large belligerent majorities on both sides will not make it easy for negotiators to accept the kind of compromise which the public interest requires." The council of the British Medical Association met to receive the results of the plebiscite and to discuss future action.

ESTABLISHMENT OF A UNIT FOR PREMATURE INFANTS

Prematurity is one of the most important and intractable causes of neonatal mortality. Because specialized methods of treatment have saved many lives, the London County Council decided to establish a unit equipped and staffed for the care of infants born prematurely either in hospital or at home, or in maternity homes not equipped for the care of such delicate patients, or, indeed, not staffed with personnel with the necessary training. The unit has been established at Hammersmity Hospital, which has a large maternity department staffed medically by the Postgraduate Medical School, and where much experience has already been gained in the treatment of premature infants. At a cost of $12,000 the ground floor and first floor of a former staff home have been equipped as accomodation for 20 infants and a certain number of mothers. The accomodation also includes a milk room, a laundry with a bottle sterilizer, an instruction room for mothers, and a dining room for them. The establishment is primarily a research unit, because many of the problems of prematurity are yet unsolved; but it will play a primary part in the arrangements made in the metropolis for premature infants. There is a medical superintendent, and the pediatricians Professors A. Moncrieff, D. de la C. MacCarthy and R.G. Gordon are in charge of the unit.

At the opening ceremony Professor Moncrieff gave as the principal aims in the care of premature infants: (1) prevention of infection; (2) provision of suitable environment, with particular attention to temperature and humidity, and (3) proper feeding. Nursing he regarded as 95 per cent of the battle.

Dr. MacCarthy said that the first aim of the unit was to establish stereotyped conditions in the handling of premature infants. These could then be modified and the effects observed.

NEW QUARTERLY OF NUTRITION SOCIETY

The Cambridge University Press is about to publish for the Nutrition Society the first part of a new quarterly, the *British Journal of Nutrition*, devoted to the publication of reports of original work in all branches of nutrition and incorporating the *Proceedings of the Nutrition Society*, at present published separately. The editorial board will consist of D P. Cuthbertson, J.N. Davidson, R.C. Garry, G. Graham, J. Hammond, E.M.M. Hume, S.K Kon (chairman), I. Leitch, H.S. Platt and J.A.B. Smith. Subscription rates for nonmembers of the Nutrition Society are $12 per volume of four quarterly parts. Separate parts are $4 Papers for publication and letters on editorial matters should be sent to Dr. S.K. Kon, *British Journal of Nutrition*, National Institute for Research in Dairying, Shinfield nr. Reading, Berks, England. Information about the Nutrition Society may be had from the secretary at the same address. Subscriptions to the *British Journal of Nutrition* and inquiries about the quarterly should be addressed to the Cambridge University Press, 200 Euston Road, London, N. W. 1.

COPENHAGEN

(From Our Regular Correspondent)

Feb. 8, 1948.

Movements Among Danish Doctors in 1947

In 1947 one hundred and twenty-five medical students qualified as doctors, and sixty doctors were gathered to their fathers. At the end of the year the membership of the Danish Medical Association was 4,325, nearly every doctor in Denmark being included in this number. There is now one doctor to every 975 inhabitants, but as only 45 per cent of all the doctors are general practitioners, each of them can count on an average clientele of about 2,100 persons. Of these, about 1,600 are over the age of 15 years and are for the most part treated on a sickness insurance basis, so that each doctor has only some 225 prospective patients not so insured.

The tendency for patients to be treated more and more in the hospital and less and less at home or in a doctor's private office is reflected in the growing number of doctors holding hospital appointments and qualifying as specialists in various fields. In 1947 there were twenty-three doctors who took the much-coveted degree of Doctor of Medicine, among them being two women. No fewer than ninety-four qualified for the status of specialist, and among them were six women. For example, in 1947 eleven doctors met the exacting claims for the title of specialist in surgery and seven became entitled to call themselves psychiatrists. Every fourth doctor in Denmark (over 1,100) is now entitled to call himself a specialist in one or more branches of his profession; about four hundred of them hold senior hospital appointments and two hundred, subordinate hospital appointments. Then there are over four hundred specialists holding part time appointments and increasing their income by private practice. Lastly, there are several general practitioners (about eighty) who are also specialists in some field or other. As for the choice between town and country, emigration from the latter to the former is symptomatic of the growing popularity of hospital treatment and of the housing shortage, which is even worse in country than in town.

Awe-Inspiring Examiners and Panicky Examinees

The relation of examiner to examinee has lately been considered once more in the correspondence columns of the journal of the Danish Medical Association (*Ugeskrift for Laeger*). It is a popular subject for discussion, for most of us harbor memories of the wounds inflicted during viva voce examinations. There is a certain type of examiner whose questions have become stereotyped by his having to examine three hundred to five hunderd students every year. There is his examinee counterpart who tries to learn by heart the correct answers to stereotyped questions and who, when the examiner departs from them, becomes hopelessly flustered.

Quite early in the medical curriculum the casualties in Denmark among the students failing to satisfy the examiners are appallingly high, and yet not high enough according to some authorities, who hold that, were the verdict to hinge on the answers given by the examinees, much more than half their number should fail. The problem is to teach the medical student not to cram his brain with minutiae but to grasp his subject intelligently as a whole—In other words, to make him study more and read less. At a recent examination the medical student world was infuriated because one of its members had answered correctly a few standard questions but had been awarded very poor marks on failing to give intelligent answers to questions that required intelligent reasoning. One correspondent suggests that the understaffing of the university is largely to blame for this state of affairs and that in certain subjects four to ten teachers are needed where now there is only one. This reform would enable the teacher to give individual attention to the educational needs of his cramming-addicted class. Another and less expensive suggestion is that examiners should attend the viva voce examinations conducted by their peers in order to get a bird's-eye view of the student's overwhelming problem, which is to satisfy all the examiners, each of whom thinks his own subject is supreme and the subjects of his fellow-examiners of subordinate importance. Doubtless such attendance would be salutary, but who is to enforce it on already overworked examiners?

Tuberculosis Survey in Copenhagen

Data are now available concerning a most instructive tuberculosis survey carried out in 1946 in the population of Copenhagen between the ages of 15 and 34. Invitations were issued to 212,320 persons of this age, and 136,604 responded to undergo mass radiography and tuberculin testing. This tuberculin testing was completed in 112,368 cases, in 22,083 of which the reaction to tuberculin was negative. These negative reactors were advised to have vaccination with BCG, and 15,938, or about 72 per cent of them, consented to this measure.

As with similar surveys elsewhere, several hitherto unknown cases of pulmonary tuberculosis were discovered. In more than half of those with tubercle bacilli in the sputum, there had been no warning symptoms. This survey cost Copenhagen nearly a million kroner (kr. 827,000) or about 1,600 kroner per case of tuberculosis, a sum corresponding to two months' treatment in a hospital. Most of the cases found (85 per cent) belonged to the age group 20 to 34, the population between 15 and 20 years of age being remarkably free from tuberculosis. This is attributed in large part to the systematic vaccination with BCG for some years past of tuberculin-negative youngsters at the school-leaving age.

BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, Jan. 23, 1948.

Rectal Biopsy for Schistosomiasis Mansoni

Progress in the diagnosis of Manson's schistosomiasis was perhaps brought about a few years ago when Ottolino and Atencio of Venezuela suggested the rectal biopsy technic with digestion of the fragment by a 4 per cent solution of potassium hydroxide. Recently, Dr. J. Rodrigues da Silva, assistant professor of clinical medicine, and Dr. Nilton Costa, pathologist, of Rio de Janeiro University, published a report on the examination of 100 consecutive patients subjected to rectal biopsy because of chronic hepatosplenomegaly, chronic constipation, diarrhea, ascitis and the like, with the description and discussion of some improvements which they introduced in the technic. With this technic they found eggs of the parasite in 13 patients; while in only 4 of them were eggs discovered by repeated examination of feces. In 1 case in which the examination of feces was positive, two rectal biopsies and the postmortem examination could not reveal the nature of the disease. In using the rectal biopsy technic to ascertain the viability of the eggs in order to control the treatment, Drs. Silva and Costa found it necessary to diminish the degree of digestion of the fragment and even to discard this stage of the technic, since it greatly modified the structure of the eggs. Examination of the material was performed by crushing the fragment between two microscope slides, as previously suggested by Morales, but they discarded as unnecessary the Morales technic of holding the slides together by means of two Hoffman's clamps. With this modified method Silva and Costa were able to recognize three different types of eggs which may be associated with the effectiveness of the treatment: (1) dead or immature eggs from patients intensively treated; (2) alive, mature eggs which may be full sized, with clear contour of a miracidium, or contracted and poorly developed eggs, in many cases correlated with treatment still under way, and (3) smaller, immature eggs, also frequently found in patients under intensive treatment.

Antibacterial Activity of Aspergillus Niger

The antibiotic activity of fungi is still being studied by many researchers. Several of these studies are connected with the genus Aspergillus, whose species niger has been demonstrated, by Foster and by Pinschmidt, to be active against some strains of Staphylococcus aureus. However, until recently, thirty-two different samples of A. niger of the collection of the Oswaldo Cruz Institute have been found to be inactive against Staph. aureus, not only by A. Rocha Fragoso of the institute but also by W. H. Wilkins and G. C. M. Harris of the mycologic laboratory of the Department of Botany, University of Oxford, England. Recently Wilkins and Harris sent to the Oswaldo Cruz Institute fourteen different samples of A. niger from the National Collection of Type Cultures to be tested by Fragoso, by the same method adopted by him in previous studies. The result of this study was published by Fragoso with the following conclusions: (*a*) in the Raulin-Mosseray medium seven strains of A. niger showed total activity with a maximum of 1:10 against Staph. aureus strain 553, strains 1161 and 2390 remaining active during more than forty days; (*b*) the Czapek-Dox medium with 5 per cent of corn-steep did not improve the results obtained with the Raulin-Mosseray medium, and (*c*) in the yeast-peptone medium all the strains were inactive.

Correspondence

FATAL REACTIONS AFTER AMINOPHYLLINE

To the Editor:—I have just read, with great interest, the courageous article by Drs. Bresnick, Woodard and Sageman in which a frank statement is made of three fatal reactions following the intravenous administration of aminophylline (The Journal, February 7, p. 397). These deaths occurred instantaneously and were compared, correctly, by the authors to similar experiences that had occurred with mercurial diuretics.

Once again, I must call attention to the work done by my associates and me regarding the clinical syndrome of "Speed Shock" (*Arch. Int. Med.* 47:259-287 [Feb.] 1931) which may follow the intravenous introduction of any molecule. Though the present clinical descriptions speak of injection at a "slow but unmeasured rate," the manner of the fatalities strongly suggests that the rate was excessive for the molecule and that death is more likely explicable on the basis of "speed shock" than as the result of the pharmacologic action of a xanthine. My reason for stressing this point is to draw attention to the urgent necessity for an avoidance of intravenous medication when other routes are accessible, particularly in the patient who is in a state of physiologic difficulty.

I am convinced that minor degrees of "speed shock" occur with great frequency. I do not know why the reactions are negligible in some, minor in others and occasionally fatal in still a third group of patients unless it is that the functional state of the liver, as indicated by our experiments, is a determining factor.

I am relatively certain that many more deaths occur from "speed shock" than are reported. I wish to commend the authors for their forthrightness in relating their experiences and urge others who have encountered similar tragedies to make official record of their experiences. Most important of all, of course, is the avoidance of "speed shock" through regard for the following principles:

1. Never give an intravenous injection when a drug can be given effectively by any other route.
2. Never inject any molecule, by the drip method, at a rate in excess of 2 cc. per minute.
3. Never inject a complicated molecule at a rate faster than 0.5 cc. per minute.
4. When injections are made by the syringe method, pierce the vein with a 26 or 28 gage needle so that rapid injection is discouraged.
5. When this small caliber needle has entered the vein, inject no more than 0.1 cc. and then wait at least thirty seconds to observe the response of the patient before proceeding.
6. If there is the slightest doubt concerning the patient's condition or any untoward reaction to the initial small injection, hesitate at least ten seconds between the administrations of each succeeding 0.1 cc.

Undoubtedly these precautions seem excessive, but a single experience with death from "speed shock" is sufficient to emphasize to the unhappy observer that intravenous injection is an irrevocable and implacable hazard, at times, under circumstances difficult to comprehend and impossible to anticipate.

Harold Thomas Hyman, M.D., New York.

DIABETES AND ARTERIOSCLEROSIS IN YOUTH

To the Editor:—A recent editorial entitled "Diabetes and Arteriosclerosis in Youth" (The Journal, Dec. 20, 1947, p. 1074) appears to demand certain qualifications. The assertion that the degree of control of hyperglycemia and glycosuria with insulin is the principal factor determining whether vascular damage will occur in a patient with diabetes is definitely open to question. Henry Dolger concludes in a recent report on 200 cases studied over a period of twenty-five years (Clinical Evaluation of Vascular Damage in Diabetes Mellitus, The Journal, Aug. 16, 1947, p. 1289) that "present day treatment of diabetes has failed to avert the accelerated vascular damage, which is an associated phenomenon of the disease and not a complication." He found that in 50 per cent of his patients vascular damage developed after thirteen years regardless of age of onset, severity of diabetes or type of treatment used. His conclusion was that duration of the disease was the most important factor in the development of degenerative vascular changes. I. M. Rabinowitch (*Ann. Int. Med.* 8:1436, 1935) has presented evidence that the fat content of the diet is another major factor in the causation of vascular damage in diabetes. Neither of these important points was mentioned in the editorial.

It is an accepted fact that coronary artery disease is relatively infrequent in women who have not had diabetes, hypertension or both. Many women with coronary disease have easily controlled diabetes which has never been complicated by acidosis, coma or significant glycosuria. It seems unreasonable to assume that other factors than hyperglycemia and acidosis are not responsible for the vascular damage in such mild cases.

An attempt to minimize vascular damage in patients with diabetes by precise control of the blood sugar to normal levels may lead to the dire consequences of hypoglycemia. Because the evidence that uncontrolled hyperglycemia is the principal factor in the production of vascular disease is open to question, it surely appears rational to allow a mild hyperglycemia and glycosuria in older patients to avoid possible acute coronary insufficiency as the result of hypoglycemia.

In conclusion, the editorial's statement that "deficiency of the hormone insulin is the crucial causative factor" in the production of arteriosclerosis overlooks other factors which may be more crucial. Its therapeutic application may lead to dangerous consequences.

Bernard D. Ross, M.D., Miami, Fla.

ENDOMETRIOSIS

To the Editor: --Endometriosis and adenomyosis are now being reported by careful gynecologic surgeons and pathologists in one of five pelves. Many of those reported are symptomless, but fairly regularly the diagnosis is made and conservative surgery is used as therapeusis. Numbers of these patients then are seen by other medical practitioners who do not understand or fail to take cognizance of the implications of the diagnosis of endometriosis. These patients are subsequently placed on estrogen therapy. This therapy in turn can be in the form of minimal doses, which seem not to stimulate the endometriosis much, but I have seen numerous patients who have had large doses of estrogen and who have had decided reactivation of their endometrial symptoms.

I should suggest that, whenever a diagnosis of endometriosis is proved, either at the operating table or in the pathologic laboratory, the patient be instructed that she is never to have estrogenic therapy for any reason whatsoever, unless full cognizance is taken of the possibility of recurrence of the remaining endometriosis and the possible results of such therapy.

LOWELL F. BUSHNELL, M.D.,
Los Angeles, Calif.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Needle Left in Patient's Body Following Appendectomy.—*The plaintiff sued for damages resulting from* the alleged negligence of the defendant physician. From a directed verdict in favor of the defendant, the plaintiff appealed to the court of appeals of Tennessee.

The plaintiff consulted the defendant physician in 1941 for a condition which the defendant described as chronic bilateral salpingitis. After being treated for this condition symptoms of appendicitis developed and the defendant removed her appendix in June, 1941. Prior to the appendectomy the plaintiff complained of nausea and cramping pains in the region of the appendix. Following the appendectomy she complained of a "sharp, jabbing pain" in her right side in the region of the incision, which pain continued until January 1946, when a needle was removed from the right lower quadrant of her pelvis within the peritoneal sac enfolded in the fat of the omentum. Immediately on removal of the needle she experienced no further pain.

The first question, said the court, was whether or not the plaintiff offered evidence of circumstances from which the jury might conclude that the needle entered the patient's body during the operation. The proof for the plaintiff, said the court, shows that the pain experienced before the operation was a "cramping" pain, whereas immediately after the operation it was a sharp, jabbing pain which would characterize the pain caused by a sharp metal object like a needle; that the same pain persisted until the removal of the needle and immediately ceased; that the seat of the pain after the operation was in the region from which the appendix was removed and there was no bulging or puffing suggestive of an infection; that she lost weight, became nervous and suffered a general deterioration of health after the operation. We think, said the court, that the plaintiff did offer evidence from which a jury might conclude that the needle entered the patient's body during the operation.

The next question, said the court, was whether or not the circumstances offered by the defendant were sufficient as a matter of law to dissipate the inferences flowing from the plaintiff's evidence. The defendant offered in explanation of these circumstances that the pain was caused by the infection of the fallopian tubes but in this connection, said the court, we note that the defendant himself testified that bilateral salpingitis would cause pain in both sides and, as we understand his testimony, pain in the region of the appendix would be higher in the abdomen than pain incident to salpingitis. The physician who removed the needle testified that salpingitis would not cause a sharp pain such as described by the plaintiff after the appendectomy unless the infection of the tubes was in an acute stage, but the defendant described the condition of the plaintiff's ovaries and tubes as showing "evidence of an old inflammatory process." This is not suggestive of an acute infection, continued the court, but, to the contrary, that the condition was chronic rather than acute. We think the explanation offered, at most, made an issue for the jury and was not conclusive of the question whether the pain described was caused by the needle. The defendant also insisted that the needle is not one he would have used in the operation; that it is not a surgeon's needle. But he admitted the possibility that the needle may have entered through the incision during the operation. If it got into the wound during the operation, said the court, it can make no difference what kind of a needle it was, though, of course, the proof that it was not a surgeon's needle tended to overcome the force of the circumstances relied on by the plaintiff and would be proper for the jury to consider. Other possible explanations of the presence of the needle in the plaintiff's abdomen offered by the defendant were: (*a*) that the needle might have been left in a gauze packing by a hospital seamstress; (*b*) that it may have been introduced into plaintiff's body during a curettement in 1943 and migrated to the place where it was found; (*c*) that it may have been swallowed during infancy; (*d*) that it may have entered the body, without causing pain, through the foot or buttocks. When the plaintiff established by credible proof circumstances from which a reasonable mind might infer that the needle entered during the operation, she was entitled to have her case go to the jury unless the defendant offered some explanation which all reasonable minds might agree destroyed the probative force of the plaintiff's evidence. The defendant could not do this by offering evidence that it might have happened in some other way, any more than a plaintiff can have a verdict on such evidence. Proof that a thing might occur in a certain way is not proof that it did in fact. It was for the jury to weigh the probabilities in the light of all the proof and determine the weight of the inferences to be reasonably drawn from the circumstances relied on by the plaintiff in the light of the possibilities or probabilities appearing from the proof offered by the defendant. Because there were possibilities or even probabilities opposed to the circumstantial evidence in the case did not overcome as a matter of law the force of the circumstantial evidence.

Accordingly, the court found that there was circumstantial evidence that the needle entered through the incision and that the explanations and circumstances offered by the defendant were not sufficient as a matter of law to dissipate the inferences favorable to the plaintiff. For this and other reasons the judgment in favor of the defendant physician was reversed and the cause remanded for a new trial.—*Johnson v. Ely, 205 S. W. (2d) 759 (Tenn., 1947).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARD OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in The Journal March 20 page 843

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I & II.* Various centers, June 21-23. Final date for filing application is May 22. *Part II.* Various centers, April 26-27. Exec. Sec., Mr. Everett S. Elwood, 225 S 15th St., Philadelphia 2. Part III. Various centers, June. Sec., Dr. J. S. Rodman, 225 S. 15th Street, Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Oral.* New York, April 12-15. Sec., Dr. Paul M Wood, 745 Fifth Ave., New York 22.

American Board of Internal Medicine: *Written.* Oct. 18. Final date for filing application is June 1. Asst. Sec-Treas., Dr. W. A. Werrell. 1 West Main St., Madison 3. Wis.

American Board of Obstetrics and Gynecology: *Oral. All Groups. Part II.* Washington, D C., May 16-22. Final date for assignment is April 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

American Board of Ophthalmology: *Oral.* Baltimore, May 20. Chicago, Oct 6. *Written.* Various centers, Jan. 1949 Final date for filing application is July 1, 1948. Sec., Dr. S. Judd Beach, 56 Ivie Rd. Cape Cottage, Maine.

American Board of Orthopaedic Surgery: *Part II.* Chicago, January 1949. Final date for filing application is August 15. Sec., Dr Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

American Board of Otolaryngology: *Oral.* Chicago, June 15-19 Sec., D. M. Lierle, University Hospital, Iowa City, Iowa.

American Board of Pediatrics: *Oral.* Cleveland, April 23-25. Chicago, June 25-27. Seattle, Sept. 10-12. Atlantic City, Nov. 17-19. *Written.* July 30. Sec., Miss Lea Leonard, 718 Royal Union Bldg., Des Moines, Ia.

AMERICAN BOARD OF PHYSICAL MEDICINE: Parts I and II. Chicago, June 19-20. Final date for filing application is April 17. Sec., Dr. R. L. Bennett, 30 N. Michigan Ave., Chicago 2, Ill.

American Board of Plastic Surgery: Examinations are given in April and November of each year in the home town of applicants Sec., Dr Robert H Ivy, 1930 Chestnut St., Philadelphia.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Oral. All Groups. San Francisco, October. Final date for filing application is July 15. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written. Part I.* October. Final date for filing application is July 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 12-16, 1949. Sec., Dr. Harry Culver, Route #13, Sunnyside Rd., Minneapolus 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American Journal of Clinical Pathology, Baltimore
17:847-924 (Nov.) 1947

Evaluation of Methods for Serum Proteins. T. J. Berry and Ella Perkins.—p. 847.

Survey of Accuracy of Chemical Analyses in Clinical Laboratories. W. P. Belk and F W. Sunderman.—p. 853.

Detection of Intravascular Clotting Tendency by Heparin Tolerance Principle: Methods and Clinical Application. H. S. Tuft and R. E. Rosenfield.—p. 862.

American Journal of Diseases of Children, Chicago
74:543-656 (Nov.) 1947

Prenatal Bowing and Thickening of Tubular Bones with Multiple Cutaneous Dimples in Arms and Legs: Congenital Syndrome of Mechanical Origin. J. Caffey.—p. 543.

Total and Fractional Blood Lipid Levels in Diseases of Childhood. Elaine M. Thomas.—p. 563.

Infection with Salmonella Typhimurium in Newborn: Epidemiologic and Clinical Considerations. H. Abramson.—p. 576.

*Diabetes Mellitus in Infants Under One Year of Age: Report of Case and Review of Literature. J. Schwartzman, Margaret E. Crusius and D. P. Beirne.—p. 587.

*Histoplasmin Sensitivity: Results of Studies of Children in Alabama. S. H. Welch and Ruth Berrey.—p. 607.

Diabetes Mellitus in Infants.—Schwartzman and his co-workers report the case of a child aged 8 months with diabetes mellitus and review from the literature 57 cases of infants less than 1 year of age who had this disease. Heredity, infections and disorders of the central nervous system were the main etiologic factors. Early symptoms may be loss of weight, dry or sensitive skin, irritability and/or crystalline deposits on the diapers. Dermatologic conditions, gangrene, cataract, infections of the respiratory tract, acidosis and coma were common complications. The commonest observations at autopsy were atrophy of the pancreas, with decrease in size and number of the islands of Langerhans, and fatty degeneration of the liver. Treatment is based on a diet approaching the normal one, supplemented with insulin and vitamins as needed. The earlier the onset of diabetes mellitus, especially if the patient is under 3 months of age, the worse the prognosis; and the longer the disease has persisted unrecognized and without proper treatment, the poorer the outlook. In all infants with a familial history of diabetes routine dextrose tolerance tests should be made every two months for the first year and every six months thereafter.

Histoplasmin Sensitivity.—Welch and Berrey describe the reactions in histoplasmin and tuberculin tests in 1,200 Negro children and 923 white children. Fifteen per cent of the Negro and 4.4 per cent of the white children had positive reactions to histoplasmin; 19 per cent of the Negro and 8.34 per cent of the white children had positive reactions to tuberculin. Results of roentgenograms of the chest are also given. No person with clinical histoplasmosis was seen in this area.

American Journal of Medicine, New York
3:663-784 (Dec.) 1947

System for Routine Treatment of the Failing Heart. H. Gold, N. T. Kwit, W. Modell and others.—p. 665.

Oral Administration of Mercupurin Tablets in Ambulatory Patients with Chronic Congestive Heart Failure. H. A. Derow and L. Wolff. —p. 693.

Pathogenesis of Peripheral Cardiac Edema. J. O. Davis and J. R. Smith. —p. 704.

Anticoagulants in Treatment of Heart Disease with Special Reference to Coronary Thrombosis, Rheumatic Heart Disease with Thromboembolic Complications and Subacute Bacterial Endocarditis. I. S. Wright and W. T. Foley.—p. 718.

Present Status of Problem of Thromboembolism. S. W. Cosgriff.—p. 740.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.
58:697-842 (Dec.) 1947

Differentiation of Patent Ductus Arteriosus and Atrial Septal Defect. A. D. Nichol and D. D. Brannan.—p. 697.

*Syndrome of Aberrant Right Subclavian Artery with Patent Ductus Arteriosus. H. P. Brean and E. B. D. Neuhauser.—p. 708.

*Roentgenologic Pulmonary Manifestations of Fatal Histoplasmosis. J F. Holt.—p. 717.

Thinness of Parietal Bones: Report of Case Having Predominantly Unilateral Involvement. A. K. Wilson.—p. 724.

Variations in Position of Azygos Septum and Its Incidence in 50,000 Roentgen Examinations. L. E. Etter.—p. 726.

Roentgenographic Visualization of Placenta in Third Stage of Labor: Preliminary Report. D. Robinson and W. S. Boyd.—p. 730.

*Eosinophilic Granuloma of Bones Associated with Involvement of Lungs and Diaphragm. A. J. Ackerman.—p. 733.

Radioactive Sodium as Tool in Medical Research. Edith H. Quimby. —p. 741.

Tissue Dosage in Radio-Isotope Therapy. R. D. Evans.—p. 754.

Artificially Prepared Radioactive Isotopes as Means of Administering Radiation Therapy. E. H. Reinhard.—p. 757.

Comparative Therapeutic Effects of Radioactive and Chemical Agents in Neoplastic Diseases of Hemopoietic System. A. M. Brues and L. O. Jacobson.—p. 774.

Analysis of Technical Factors and Results of Treatment in Carcinoma of Cervix Uteri: Description of Improved Radium Applicator. G. E. Richards.—p. 783.

*Roentgen Therapy in Uterine Fibromyoma Without Ovarian Sterilization. G. E. Pfahler.—p. 798.

Syndrome of Aberrant Right Subclavian Artery.—Brean and Neuhauser report the occurrence of congenital heart disease in 2 boys and 3 girls between the ages of 1 year, 9 months and 4 years, 11 months. Three of the congenitally abnormal hearts were clinically and roentgenologically typical of patent ductus arteriosus, 1 being surgically verified. The fourth was a tetralogy of Fallot, surgically verified. The fifth was a congenital abnormality apparently involving an intracardiac shunt. These 5 cases were part of a series of 15 patients on whom the diagnosis of aberrant right subclavian artery has been made. In 1 of the cases of anomalous subclavian artery with coexistence of a patent ductus arteriosus, German measles in the mother in the second month of pregnancy was the evident cause of the congenital abnormalities. It is suggested that anomalous subclavian artery and patent ductus arteriosus are both manifestations of a basic fetal abnormality, induced in at least some cases by virus disease in the early months of pregnancy. The value of a routine barium swallow during roentgenoscopic examination of the heart and lungs is emphasized.

Pulmonary Manifestations of Fatal Histoplasmosis.—Holt reports roentgenologic pulmonary observations in 5 patients, 4 men between the ages of 41 and 60 and 1 woman aged 30, with fatal generalized histoplasmosis. One of these cases is reported for the first time; the others are included as a roentgenologic supplement to previous publications of the University of Michigan. Analysis of data in these 5 patients indicates that the pulmonary changes in histoplasmosis are as varied as the clinical manifestations of the disease. Histoplasmosis belongs to that relatively large group of pulmonary diseases in which the roentgenologist must be content to identify the presence of abnormality, to determine its extent, to describe certain features regarding its appearance and to offer various suggestions regarding its causation without arriving at a definite diagnosis. The possibility of Histoplasma capsulatum as the etiologic agent of chronic pneumonitis should be particularly mentioned when widespread, coarse, granular, parenchymal lesions are encountered. Final diagnosis of histoplasmosis depends on various laboratory procedures directed toward identification of the yeastlike fungus characteristically found in the cells of the reticuloendothelial system.

Eosinophilic Granuloma of Bones.—Ackerman reports 1 case of multiple osseous lesions associated with involvement of the lungs and diaphragm in a man aged 19 Histopathologic study of an affected rib revealed changes characteristic of eosinophilic granuloma. Histopathologic evidence suggests that there is a close relation between eosinophilic granuloma and Hand-Schüller-Christian's disease. The postulation that only cases with lesions classifiable as lipogranuloma be included in the group of Hand-Schüller-Christian's disease appears too rigid. The author's case demonstrated the association of eosinophilic granuloma with pulmonary and diaphragmatic involvement, whereas the cases reported by Versiani and by Thoma emphasized the coexistence of eosinophilic granuloma and the craniohypophysial manifestations of the disease. The clinical history in Ackerman's case is of long duration and the osseous lesions are of considerable standing and, therefore, they contrast with the opinions expressed by some authors that only early lesions exhibit histopathologic features of eosinophilic granuloma and that the subsequent changes occur fairly rapidly. It is suggested that there are significant variations in the evolution of the basic pathologic process and that the clinical manifestations of the disease in its chronic forms depend largely on the localization of the lesions. The involvement of the diaphragm, not previously recorded in the literature, represents another example of a muscular organ which can be involved in the disease. The method of combined diagnostic pneumothorax and pneumoperitoneum again proved of definite value in establishing the anatomic relations of homogenous densities inseparable from the diaphragm.

Roentgen Therapy in Uterine Fibromyoma.—Pfahler treated 4 women between the ages of 24 and 37 who had uterine fibroids of the interstitial type by roentgen radiation. The ovarian regions were protected by lead, and in none of the four was menstruation interrupted. The first patient had four healthy children after the treatment. One died during childhood from causes not related to irradiation; the three others are alive, have been in military service and have been normal in every respect. The second patient gave birth prematurely to two children after the treatment, but premature birth was due to accidental causes not related to the irradiation. The third patient has not been pregnant during the seven and a half years since roentgen treatment between the ages of 35 and 43. The fourth patient became pregnant after the treatment at the age of 32, and now the child is a healthy girl aged 20 In all these patients the fibroid disappeared completely. Pfahler agrees with Macfarlane that the possibility of carcinoma developing in the uterus after radium or roentgen treatment is extremely remote. This possibility does not contraindicate radium or roentgen treatment of myomatous tumors or of climacteric bleeding.

Annals of Surgery, Philadelphia

126:841-1053 (Dec) 1947

Restorative Endoaneurysmorrhaphy by Vein Graft Inlay. A. H. Blakemore.—p. 841.
*"Borrowing-Lending" Hemodynamic Phenomenon (Hemometakinesia) and Its Therapeutic Application in Peripheral Vascular Disturbances. M. E. DeBakey, G. Burch, T Ray and A. Ochsner.—p 850.
Arterial Injuries. M. K Smith.—p 866.
*Sympathectomy for Obliterative Arterial Disease: Indications and Contraindications. N. E. Freeman, F. H. Leeds and R. E. Gardner.—p. 873.
Chondrosarcoma. J. J. Morton and G. B Mider.—p 895.
Experiences with Bone Bank P D. Wilson—p 932.
Penetrating Wounds of Major Joints. J. E. Thompson and F. B. Berry.—p. 947.
Pulmonary Cavernous *Hemangioma* with Arteriovenous Fistula, Surgical Management: Case Report J D. Bisgard—p 965
*Control of Hemorrhage from Wounds of Heart by Gelatin Sponge "Patch" Technic: New Experimental Method H P. Jenkins, H. Owen, E Senz and R W Jampolis—p 973
Familial Hemolytic Anemia and its Surgical Aspect with Special Reference to *Case Complicated* by Rh Factor. D. B. Pfeiffer, J. W. Levering and H B Grove.—p 990
Specific Role of Liver in Hemorrhagic Shock: Report of Progress to Date J. Fine, A. M Seligman and H A *Frank*—p 1002
Redistribution of Body Water and Fluid Therapy of Burned Patient. O. Cope and F. D Moore—p 1010.

Peripheral Vascular Disturbances.—According to DeBakey and his associates, more refined technics of plethysmography made it possible to carry out accurate quantitative studies of the fluctuations in volume in such peripheral parts as the pinnae, the fingers and the toes. Evidence indicates that there is a continuous shifting back and forth of blood from one part of the body to another, for this "borrowing-lending" mechanism the term hemometakinesia is proposed. There seems to exist a well regulated mechanism which permits the body to utilize its limited total blood volume in the most efficient manner to meet variations in local requirements The essence of this mechanism seems to lie in the control and regulation of the vascular bed, which permits an increase in the volume of blood of one part of the body with a corresponding simultaneous decrease in the volume of blood in another part without any alteration in the total blood volume. It is suggested that these principles of hemodynamics are applicable to the management of peripheral vascular disease, the effective therapy of which is based on improvement in the circulation or an increase in the blood supply of the part. Measures directed toward the improvement of the local circulation by production of dilatation of the entire vascular bed are of doubtful value, whereas measures directed toward local vasodilatation are in conformity with the natural "borrowing-lending" mechanism hemometakinesia). The most effective method of increasing the local blood supply is sympathetic denervation of the affected part. Two cases, selected from a large experience, are reported to illustrate the concept of hemometakinesia and to demonstrate the value of sympathetic denervation as a therapeutic measure in peripheral vascular disease.

Sympathectomy for Obliterative Arterial Disease.—Freeman and his co-workers say that at the same time when Atlas reported disastrous results from sympathectomy one of them had noted similar phenomena in 4 cases. The first patient had thromboangiitis obliterans and had sustained an occlusion of the left iliac artery Immediately following lumbar ganglionectomy the hypesthesia of the left foot became much more extensive. It was thought that the drop in blood pressure during spinal anesthesia and the use of the head-down position to combat this complication accounted for the increase in vascular insufficiency. Some months later, however, extensive gangrene of the dorsum of the foot developed, and amputation was performed The second patient had severe ischemic neuritis after an acute arteriosclerotic occlusion of the left popliteal artery. When she obtained relief from pain with lumbar block, the sympathetic ganglions were excised. The pain which she had suffered for ten months was relieved. However, oscillations at the ankle, which before sympathectomy were barely perceptible, instead of being improved actually disappeared Necrosis of the tissues on the dorsum of the foot necessitated amputation of the leg three months later. The authors classify these 2 cases as belonging to the low vascular tone group in which sympathectomy is not indicated. They conclude that sympathectomy is useful in the treatment of obliterative arterial disease, especially in patients who show evidence of abnormal vasoconstriction. In advanced obliterative arterial disease, however, especially in patients without evidence of abnormal vasoconstriction, sympathectomy may result in gangrene Although the total circulation may be increased after sympathectomy in these cases, much of the blood is probably shunted directly into the veins through the establishment of numerous arteriovenous anastomoses. The nutrient capillary flow may actually be reduced.

Control of Hemorrhage From Heart by Gelatin Sponge.—Jenkins and his associates investigated the possibility of using the gelatin sponge by the patch technic for wounds of the heart. Fifteen dogs were anesthetized with ether and an intratracheal tube inserted. The chest was entered and the heart exposed. A stay suture was passed through the apex of the heart for traction A wound was then made in the right or left ventricle. A sheet of dry, compressed gelatin sponge was applied over the spurting wound and held in place by the operator's fingers with moderate pressure synchronized with the contractions of the heart while traction was made on the suture passed through the apex. Pressure was maintained over the patch for three to five minutes for wounds of the right ventricle and five to thirteen minutes for wounds of the left ventricle. After twenty to thirty minutes the patch was usually firmly adherent. The pericardium was then sutured and the wound in the chest closed When the dry compressed gelatin sponge is applied over the spurting wound it acts first as a tampon to slow down and stop the flow of blood. As the sponge becomes saturated, clotting occurs in the sponge, thus forming a reinforced clot During the clotting process fibrin is liberated, which permits this reinforced clot, or sponge clot, to adhere to the heart Healing progresses under the protective cover of the sponge, which ultimately undergoes absorption. Gelatin sponge may have a place in the treatment of wounds of the heart to control the immediate hemorrhage, as a supplement to suture or possibly as an alternate to suture under special circumstances such as proximity of the wound to a coronary vessel.

California Medicine, San Francisco

67:357-404 (Dec.) 1947

Interpretation of Gastric Symptoms. A. M. Hoffman.—p. 357.
Surgical Treatment of Bleeding Peptic Ulcer. C. Mathewson Jr.—p. 359.
Certain Roentgen Manifestations of Gastric Lesions. R. A. Carter and J. E. Vickers.—p. 363.
Psychosomatic Considerations of Gastric Disease. M. A. Zeligs.—p. 368.
•Medical Treatment Versus Prevention of Peptic Ulcer. T. L. Althausen.—p. 371.
Vagus Resection for Peptic Ulcer. J. C. Jones—p. 375.
Congestive Splenomegaly (Banti's Syndrome) Due to Portal Stenosis. D. S. Shillam.—p. 379.
Pentothal Interview in Treatment of Chronic Alcoholism. P O'Hollaren.—p. 382.
Malignant Lymphoma. A. Wright.—p. 386.

Treatment of Peptic Ulcer.—According to Althausen, medical treatment of uncomplicated peptic ulcer produces prompt relief and early healing of the current ulcer in over 90 per cent of cases. Failure of the physician to insist on a strict and sustained regimen decreases the percentage of successful cases and results in early recurrences. Medical treatment contributes nothing toward prevention of recurrences. With few exceptions, peptic ulcer is an incurable disease which must be kept under control by appropriate measures. Recurrences of peptic ulcer are associated with four main inciting causes: physical and mental fatigue, emotional disturbances, dietary indiscretions and respiratory infections. In addition to prescribing an adequate therapeutic regimen the physician has a threefold duty toward the ulcer patient: to instruct him in the true nature of his disease; to convince him of the necessity of long continued preventive measures, and to assist him in readjusting his life for the purpose of avoiding tension. In the event of recurrence of pain due to ulcer the patient should be prepared to resume at once the strict diet and medical regimen and to report to his physician.

Connecticut State Medical Journal, Hartford

11:961-1040 (Dec.) 1947

•Sodium Restriction in Hypertension. G. A. Perera.—p. 963.
Discussion of Treatment of Functional Dysmenorrhea and Hormonal Test for Endometriosis. J. M. Freiheit.—p. 965.
•Industrial Noise as It Affects Hearing. W. Machle.—p. 972.
Oxidized Cellulose in Nasal and Pharyngeal Hemorrhages. G. K. Dwyer.—p. 976.
Teratoma of Mediastinum: Case Report. I. Horowitz.—p. 978.
Psychiatry and Future of Medicine. L. S. Kubie.—p. 982.

Sodium Restriction in Hypertension.—Perera says that for the past three years patients with uncomplicated hypertensive disease have been studied at the Presbyterian Hospital in New York, primarily because of interest in a possible adrenal cortical relationship. The patients were placed on identical daily diets, which contained from 0.7 to 0.8 Gm. sodium chloride a day. To this could be added fixed amounts of salt in weighed shakers. Throughout the study the patients were on a constant fluid intake. Slight but consistent effects of rigid restriction of sodium chloride were observed in 6 hypertensive subjects. Following the establishment of a base line, sodium chloride was restricted for a period of two weeks and in all instances there was a drop in resting blood pressure. A few patients felt slightly improved subjectively or noted relief of headaches. Following a base line period in which there was a daily ration of 4 Gm. of sodium chloride, in 5 of 6 hypertensive patients who were given 15 Gm. per day there was a slight increase in the resting blood pressure. The effect of rigid restriction of sodium chloride on the pressor action of desoxycorticosterone acetate was then tested in 5 patients. Lastly, the effect of twenty-four hours of rigid restriction of sodium chloride in normotensive and hypertensive subjects was studied. It appears that sodium chloride is related in some way to the mechanism of hypertensive vascular disease. Its restriction as a therapeutic measure is still on trial, the harm of such limitation and dietary invalidism often exceeding the benefit.

Industrial Noise and Hearing.—There has been controversy about the effect of industrial noise on hearing. Machle mentions factors responsible for the lack of clear understanding of this problem. Recently the question has been raised as to the compensability of loss of hearing from industrial exposure to noise. The large number of variables make interpretation of isolated cases difficult. The first step should be the institution of preemployment audiometric examination of all workers who are likely to be exposed to high noise levels. Repeated survey of the most exposed groups is indicated, and study of the magnitude and spectrum of noise at various places in the plant should be carried out. Standardized instruments are available.

Experimental Medicine and Surgery, Brooklyn

5:307-449 (Nov.) 1947. Partial Index

Notes on Electron Microscopy of Tissue Sections: Submicroscopic Spherical Bodies in Carcinoma. A. E. Gessler and C. E. Grey.—p. 307.
Q-Wave in Chest Leads. B. Kisch and B. Richman.—p. 331.
Clinical Aspects of Hyperactive Carotid Sinus. S. Wassermann and J. I. Goodman.—p. 363.
Cardiac Infarcts Induced by Excitation and Over-Exertion of Rats: Preliminary Study. S. Hirsch and S. Zylberszac.—p. 383.
Bacteriostatic Action of Benzothiazole Derivatives on M. Lepiae. B. L. Freedlander and F. A. French.—p. 391.
Heart in Avitaminosis E. G. J. Martin and F B. Faust.—p. 405.
Exocardial and Endocardial Electrogram of Ventricles: Experimental Study. F. M. Groedel, B. Kisch and P. R. Borchardt.—p. 411

Journal of Bacteriology, Baltimore

54:671-810 (Dec.) 1947. Partial Index

Effect of Streptomycin on Metabolism of Benzoic Acid by Certain Mycobacteria. R J. Fitzgerald and F. Bernheim.—p. 671.
Concerning Flagellation and Motility. H. J. Conn and R. P. Elrod—p. 681.
Reducing Pyrogenicity of Concentrated Protein Solutions W. E Smith and R. B. Pennell—p. 715.
•Cytochemical Mechanisms of Penicillin Action: IV. Comparative Responses of Grampositive and Gramnegative Bacteria to Penicillin R. Pratt and Jean Dufrenoy.—p. 719.
Lethal and Sublethal Effects of X-Rays on Escherichia Coli as Related to Yield of Biochemical Mutants. R. R. Roepke and Florence E Mercer.—p. 731
Effect of Podophyllin on Eberthella Typhosa. T. H. Grainger Jr—p. 759.
Activities of Twenty-Two Antibacterial Substances Against Nine Species of Bacteria. F. Kavanagh.—p. 761

Cytochemical Mechanisms of Action of Penicillin.—Pratt and Dufrenoy consider it well established that large differences exist in the sensitivity of gram-positive and gram-negative organisms to penicillin. The differences are so large that most infections due to gram-negative organisms are classed as refractory to penicillin therapy, although it is known that many such organisms are inhibited at sufficiently high concentrations of the antibiotic in vitro. The authors describe physical and chemical changes that occur in different parts of penicillin assay plates seeded with gram-positive and gram-negative test organisms. The evidence indicates that penicillin affects aerobic gram-positive and gram-negative organisms through the same chemical systems. However, the concentration at which its effects become manifest is many times greater on plates seeded with gram-negative organisms than on those seeded with gram-positive organisms. The proper use of trace amounts of cobalt lowers the effective threshold on test plates, a fact which may have practical clinical importance as well as theoretic interest, since the same phenomenon has been demonstrated in vivo.

Journal of International College of Surgeons, Chicago

10:629-726 (Nov.-Dec.) 1947

Management of Vesical Dysfunction Following Abdominoperineal Proctosigmoidectomy. Lowrain E. McCrea.—p. 629.
Gastric Resection: Its History and Present Status. H. Finsterer and R. A. Leonardo.—p. 639.
Surgical Treatment of Extradural Hematoma. H. C. Voris.—p. 655
Hemicolectomy and Proctosigmoidectomy with Transplantation of Transverse Colon to Anus: Report of 8 Cases. H. E. Bacon and C. H. Smith.—p. 661.
Lumbosacro-Iliac Arthrodesis. G. M. Mes.—p. 666
Double Forceps Technic for Delivery of Posterior Head H. L Pelkus.—p. 669.
Treatment of Chronic Deep Thrombophlebitis. C. A. Rosenbaum—p. 671.
Presacral Neurectomy for Relief of Uterine Dysmenorrhea. J. R Yung.—p. 675.
Spontaneous Perforation of Gallbladder: Report of Case Occurring 35 Years After Cholecystostomy. C. S. Ratigan and D. E. Di Iaconi.—p. 679.
Late Gangrenous Hernia: Conservative Operative Treatment with Recovery in a Nonagenarian. A. Solosko.—p. 683.

Minnesota Medicine, St. Paul

30:1225-1334 (Dec.) 1947

Fenestration Operation for Otosclerosis. G. E. Shambaugh Jr.—p. 1249.
Follow-Up of Abnormal Pulmonary Findings Observed in Mass Chest X-Ray Surveys. H. Mark—p. 1251.
Acute Perforated Gastric and Duodenal Ulcer: Eighteen-Year Survey. D. C. MacKinnon.—p. 1253.
Streptomycin: Its Present Uses. D. R. Nichols.—p. 1263.
Cardiac Findings Due to Sternal Depression: Report of 2 Cases. A. E. Moe.—p. 1265.

New York State Journal of Medicine, New York

47:2623-2748 (Dec. 15) 1947

*Prefrontal Lobotomy Under Direct Vision: Survey of Psychiatric Aspects. J. E. Scarff and L. B. Kalinowsky.—p. 2669.
Effects of Influenzal Meningitis on *Nervous System.* R. D. *Adams* and C. S. Kubik.—*p. 2676.*
Intangible Factors in Treatment of Patients with Low Back Pain with Special Reference to Industrial Patients. W. P. Van Wagenen.—p. 2683.
Importance of Early Diagnosis in Surgical Treatment of *Carcinoma of* Lung. A. Lambert.—p. 2688.
Paget's Disease and Central Nervous System. A. M. Rabiner and M. H. Hand.—p. 2689.
Narcodiagnosis and Narcotherapy in *Neuroses and Psychoses.* P. H. Hoch.—p. 2694.
Metabolic and Nutritional Aspects of *Arterial Hypertension.* E. Foldes.—p. 2699.
Nature of Acute Leukemia and Interrelationship of Malignant Dyscrasias. R. D. Barnard.—p. 2703.

Prefrontal Lobotomy Under Direct Vision.—Scarff and Kalinowsky say that although the technic which Freeman and Watts developed for prefrontal lobotomy recommends itself for its technical simplicity, it is open to objections. To offset these objections Scarff and Kalinowsky have been performing the section of white matter under direct vision. A coronal incision of the scalp is made which crosses the midline just posterior to the coronal suture and passes laterally and slightly forward toward the lateral rim of the orbit. The anterior flap of scalp is then reflected forward, exposing the central two thirds of the coronal suture and the area of the skull immediately before and behind it. A small osteoplastic flap is then turned up on each side of the midline, hinged on the temporal muscle. These flaps straddle the coronal suture and lie about two thirds in front of the coronal suture and one third behind it. The authors describe how the actual section is made and say that leukotomy under direct vision assures a minimal operative mortality and postoperative morbidity. Little change, if any, occurs to the patient's pulse rate or blood pressure during the operation. Within a few hours after operation the patients are usually responsive and fairly well oriented. Stitches are removed on the third postoperative day, and the patient as a rule is out of bed by the sixth or seventh day.

North Carolina Medical Journal, Winston-Salem

8:751-806 (Dec.) 1947

Psychosomatic Problems in Gynecology. W. L. Thomas.—p. 751.
Treatment of Diabetes Mellitus. L. A. Crowell Jr.—p. 754.
Prophylaxis and Management of Reactions to Penicillin. J. Farrington S. Olansky and Kathleen A. Riley.—p. 759.
Insulin as an Adjunct in Treatment of Anxiety States. D. M. Kelley and L. J. Thompson.—p. 762.
Friedlaender Pneumonia with Bacteremia Successfully Treated with Streptomycin: Report of Case. J. P. Davis, K. M. Cheek and G. T. Harrell Jr.—p. 767
Loeffler's Syndrome: Review of English Literature and Report of Case. E. S. Faison.—p. 770.
Acute Primary Ileo-Ileal Intussusception in an Adult: Report of Case. S. H. Williams Jr.—p. 776

Occupational Medicine, Chicago

4:*137-252* (Aug.) *1947*

Bursitis. J. D. Adams and G. K. Coonse.—p. 137.
*Chlorine Accident in Brooklyn. H. Chasis, J. A. Zapp, J. H. Bannon and others.—p. 152.

SYMPOSIUM ON INDUSTRIAL HEALTH EDUCATION

Medical Education in Relation to Industrial Health. R. A. Kehoe.—p. 177.
Training in Industrial Medicine at University of Pittsburgh. W. S. McEllroy.—p. 182.
Need for Scientific Research in Industrial Medicine. J. M. Carlisle and A. Gibson.—p. 185.
Practical Points in Teaching of Industrial Medicine. L. J. Goldwater—p. 189.
Schools of Public Health. H. F. Vaughan.—p. 194.
Education of Industrial *Hygiene Physician.* J. H. Sterner.—p. 198
Engineering in Industrial Health Education. W. C. L. Hemeon.—p. 201.
Germanium. W. C. Hueper.—p. 208.

Chlorine Accident in Brooklyn.—Chasis and his co-workers say that in June 1944 leakage from a tank containing liquid chlorine in a Brooklyn street caused many casualties. Four hundred and eighteen persons were examined in eight hospitals, and 208 were admitted for treatment. The authors review observations on a group of 33 patients who were hospitalized for one or two weeks. The symptoms during the first few hours after exposure consisted of burning of the eyes with lacrimation, burning of the nose and mouth with rhinorrhea and increased salivation, cough, choking sensation and substernal pain. These were frequently accompanied by nausea, vomiting, headache and dizziness. The changes in the respiratory tract consisted of tracheobronchitis, pulmonary edema and pneumonia. Tracheobronchitis was evident in all 33 patients, subsiding in most instances in five to seven days. Pulmonary edema, chiefly basilar in location, was observed in 23 of 30 patients. Twelve of the 14 patients in whom pneumonia developed had pulmonary edema. Except in 3 patients, the clinical course of the pneumonia was benign. Respiratory distress and substernal pain generally subsided within the first seventy-two hours but were frequently followed by substernal soreness. Cough, present in every patient at first, disappeared by the end of fourteen days. The abnormal pulmonary features consisted of mottling, patches of irregular density and differences in the aeration of the two pulmonary fields. Arterial oxygen unsaturation was present within eight hours after exposure in 6 of 8 patients selected for examination because of cyanosis and extensive pulmonary involvement. The incidence of pneumonia was higher in patients who did not receive chemotherapy from the start than in those who received sulfadiazine or penicillin from the first day following exposure. Sulfadiazine appears to be the prophylactic of choice. Bronchodilating drugs such as epinephrine and aminophylline were of benefit in relieving respiratory distress and bronchial obstruction when administered early but were without significant effect when administered late. Eleven of the 33 patients who were observed for sixteen months after discharge from the hospital retained no symptoms attributable to exposure to chlorine. Sixteen patients had anxiety reactions with phobias, hysterical phenomena and psychomotor dysfunction persisting for one to sixteen months.

Ohio State Medical Journal, Columbus

44:1-112 (Jan.) 1948

The Diabetic Patient. H. J. John.—p. 33.
Surgical Treatment of Pain. Diagnostic and Therapeutic *Outline.* O. A. Turner.—p. 38.
Antithyroid Drugs and Private Practitioner. R. C. Austin, E. F. Damstra and A. J. Carlson.—p. 43.
Present Status of Vagotomy. H. C. *Klein.*—p. 47.
Complications of Electric Shock Therapy with Case Study. D. W. Sprague and R. C. Taylor.—p. 51.
Clinical *Variations of* Primary Syphilis. I. L. Schonberg.—p. 55.
Technic of Endotracheal Anesthesia. K. C. McCarthy.—p. 57.
Chronic Interstitial Pancreatitis with *Diabetes* Mellitus and Terminal Necrotizing Renal Papillitis. D. F. Richfield.—p. 59.
Malignant Carcinoid of Jejunum. W. Sinclair Jr.—p. 61.

Philippine Medical Association Journal, Manila

23:497-584 (*Nov.*) *1947*

The Physick-Sellheim Cesarean Section in Potentially Infected Cases. C. P. Manahan and M. R. De Leon.—p. 497.
Buerger's Disease: Its Management. A. I. Reyes and F. Constantino.—*p. 503.*
Blood Bilirubin Studies: II. Bile Pigments in Different Diseases Associated with Jaundice. R. J. Navarro, A. Tangco and J. Silva.—*p. 509.*

Quarterly J. of Studies on Alcohol, New Haven, Conn.

8:*377-551* (Dec.) 1947

Some Factors Influencing the Rate of Metabolism of Ethyl Alcohol. H. W. Newman.—p. 377.
The Drinking Driver: Problems of Enforcement. D. G. Monroe.—p. 385.
Attitudes and Experiences of American-Jewish and American-Irish Male Youth as Related to Differences in Adult Rates of Inebriety. D. D. *Glad.*—p. 406.
Mobilization of Community Resources for Attack on Alcoholism. S. D. Bacon.—p. 473.
*Alcoholism—an Occupational Disease of Seamen: Approaches to Solution of Problem in Port of New York. J. I. F. Executive Secretary.—p. 498.

Alcoholism an Occupational Disease of Seamen.—The executive secretary of the Alcoholics Anonymous Seamen's Club, New York, says that at one of the merchant marine rest centers set up during the war by the United States Public Health Service and the United Seamen's Service some members of the medical staff recognized that alcoholism rather than combat fatigue was responsible for the *hospitalization of many* of the men. A treatment program was inaugurated. The men were told that once a person becomes an abnormal drinker he can never drink safely again. This was a *shock to many of* the seamen. When the physicians told the seamen about Alcoholics Anonymous, they were quick to build up excuses. As an alternative the seamen were encouraged to start their own group. The Alcoholics Anonymous Seamen's Club soon developed an intensive program and expanded its activities by giving talks at marine hospitals, schools, union halls and Seamen's Y. M.

C. A.s. Through the many contacts built up at the Sand's Point Rest Center men were formed into groups and introduced to Alcoholics Anonymous and the facts about alcoholism. The author mentions facilities available for the care of alcoholic seamen in the port of New York.

Radiology, Syracuse, N. Y.

49:659-786 (Dec.) 1947

Roentgenologic Study of Small Intestine: II. Dysfunction Associated with Neurologic Diseases. F. J. Hodges, R. W. Rundles and J. Hanelin.—p. 659.
Newer Methods of Pneumoarthrography of Knee with Evaluation of Procedure in 315 Operated Cases. I. Meschan and W. H. McGaw. —p. 675.
Dissecting (Intramural) Pharyngo-Esophageal Diverticulum. A. Melamed and L. J. Walker.—p. 712.
Spinal Extradural Hemangioblastoma Roentgenographically Visualized with Diodrast at Operation and Successfully Removed. I. M. Tarlov. —p. 717.
Further Studies on Relation Between Radiation Effects, Cell Viability, and Induced Resistance to Malignant Growth: IV. Comparison of Effects of Roentgen Rays on Mammary Tumors Autogenous to Inbred Strains of Mice (dba and C3H). Anna Goldfeder.—p. 724.

Rhode Island Medical Journal, Providence

30:845-904 (Dec.) 1947

Characteristics of Asthma in Infancy. W. P. Buffum.—p. 859.
Common Skin Diseases and Their Treatment. W. D. Wolfe.—p. 865.
*Psychoses with Trichinosis: Review of Literature and Report of Case. W. E. Campbell.—p. 870.
Medical Staff and Hospital. G. W. Waterman.—p. 878.

Psychoses with Trichinosis.—Campbell states that trichinosis can be divided into three stages, invasion, migration and encystment. It is during the stage of migration that the central nervous system may become involved. According to some observers, involvement of the nervous system may develop in as high as 10 per cent of patients with trichinosis. However, the development of psychosis is comparatively rare, the American and English literature reporting only 19 cases. The prognosis in these cases is not good. In one series 6 of 13 died and 2 had residual neurologic damage. Of the 6 cases reported since 1936, half were fatal. The author reports a new case, that of a man aged 30 who became mentally confused. He would stand in one position staring straight ahead; he chewed paper and sticks and voided on the floor; he was restless, agitated, confused and disoriented; complained of vague pains in his leg and buttocks; he rubbed his nose and mouth continually and answered questions in an irrelevant, facetious manner; he was ataxic and limped on his left leg. He had a positive Romberg sign, falling backward and to the left. Deep reflexes were diminished in the left arm and leg. The left abdominal reflex was absent. His confusion gradually cleared, so that after two weeks he was mentally clear and correctly oriented but had no recollection of his acute illness. He improved further and was discharged but was not well enough to work. In follow-up he complained of being more tense, nervous and restless than he was before his illness. Neurologic examination was negative except for some pain in the lower part of his legs.

Rocky Mountain Medical Journal, Denver

44:966-1091 (Dec.) 1947

Public Relations Program of Colorado State Medical Society: Account of Its Early Growth and Digest of Actions of 1947 House of Delegates. H. T. Sethman.—p. 985.
Purpose of State Medical Societies. C. Barker.—p. 995.
Washington Scene and Politico-Medicine. J. J. Boyle.—p. 1000.
Experiences of Rocky Mountain States with V. A. Program. W. H. Tibbals.—p. 1004.
Clinical Report on Intravenous Benadryl. H. I. Goldman.—p. 1007.

South Carolina Medical Assn. Journal, Florence

43:353-384 (Dec.) 1947

Medical Service. A. W. Adson.—p. 353.
Second Ruptured Tubal Pregnancy with Intra-Uterine Pregnancy. G. E. Thompson and J. M. Fleming.—p. 355.
Pfannenstiel Incision. D. L. Maguire Jr.—p. 356.
Varicose Veins—Treatment by Excision Preferable to Treatment by Ligation and Injection. W. H. Prioleau.—p. 359.

44:1-36 (Jan.) 1948

Fifty Years. T. A. Pitts.—p. 1.
Physiopathologic Discussion of Jaundice in Early Life. M. W. Beach and C. D. Conrad.—p. 5.
Coronary Occlusion: Therapeutic Contribution. W. T. Lander.—p. 15
Gastro-Enterology. H. Smith.—p. 16.
Significant Recent Advances in Obstetrics. J. D. Guess.—p. 17.

Surgery, Gynecology and Obstetrics, Chicago

86:1-128 (Jan.) 1948

*Influence of Vitamin E on Vascular Disease. E. V. Shute, A. B. Vogelsang, F. R. Skelton and W. E. Shute.—p. 1.
Visceral Endopelvic Fascia and Hypogastric Sheath. E. Uhlenhuth, E. C. Day, R. D. Smith and E. B. Middleton.—p. 9.
*Heterologous Growth of Cancer of Human Prostate. M. S. Hovenanian and C. L. Deming.—p. 29.
Study of Ureteral Blood Supply and its Bearing on Necrosis of Ureter Following Wertheim Operation. J. P. Michaels.—p. 36.
*Hypertrophic Pyloric Stenosis. A. A. Schaefer and J. Erbes.—p. 45.
Infrared Photographic Study of Superficial Veins of Thorax in Relation to Breast Tumors: Preliminary Report. L. C. Massopust.—p. 54.
Repair in Normal and Hyperacid Stomach: Experimental Study. P. B. Price.—p. 59.
Painful Heels in Children. E. S. R. Hughes.—p. 64.
Acute Pancreatitis: Statistical Review of 307 Established Cases of Acute Pancreatitis. J. R. Paxton and J. H. Payne.—p. 69.
Causalgia: I. Role of Sympathetic Interruption in Treatment. H. B. Shumacker Jr., I. J. Speigel and R. H. Upjohn.—p. 76.
Evaluation of Treatment of Slipping of Capital Femoral Epiphysis. I. Ponseti and C. K. Barta.—p. 87.
Selection of Operative Procedure to Avoid Colostomy in Carcinoma of Rectum and Rectosigmoid. R. R. Best.—p. 98.
Tissue Protein Depletion: Factor in Wound Disruption. S. A. Localio, J. L. Chassin and J. W. Hinton.—p. 107.

Influence of Vitamin E on Vascular Disease.—The fact that animal experiments with diets deficient in vitamin E disclosed vascular abnormalities and that vitamin E in the form of tocopherols exerted favorable effects in lesions involving vascular degeneration induced Shute and his associates to try treatment with tocopherols in patients with vascular disease. They report observations on 22 patients with thrombophlebitis or phlebothrombosis. Fresh thrombi are often associated with a low platelet count. Clinical improvement in these patients was coincident with a rise in platelet count. A decrease of platelets and a persisting high sedimentation rate on tocopherol therapy is an indication either of recurrence or extension and demands an increased dose. Should puerperal women be given tocopherols to avoid thrombosis? Such therapy might also promote lactation. Many herniotomies and pelvic operations might benefit from prophylactic dosage. The authors also observed the effect of tocopherols on 13 patients with indolent ulcers of leg and ankle. The response is ascribed to an improvement in local arteriolar circulation and to better utilization of oxygen by the tissues. Of 3 cases of gangrene of the extremities in which the author employed tocopherol, 1 is described in which amputation of both legs above the knee seemed necessary. After tocopherol treatment amputation was no longer necessary. Tocopherol might be helpful in frostbite and immersion foot. The tocopherols should be helpful wherever improved arteriolar circulation or better oxygen utilization is desired. The need for continued treatment at high dosage levels in so many cardiovascular conditions is analogous to the situation encountered in hormone substitution therapy. About 200 to 300 mg. of alpha tocopherol per day seems to be the average therapeutic level.

Heterologous Growth of Cancer of Prostate.—Hovenanian and Deming point out that human prostatic cancer presents a type of malignant growth which may be investigated from the point of view not only of autonomous growth but also of endocrine factors. Guinea pigs were employed as the alien hosts. Specimens for transplantation were inoculated into the anterior chamber of the eye. The successful transplantation heterologously into guinea pigs demonstrates the autonomous nature of this cancer. It has been shown by serial transplantation that prostatic cancer is under the influence of endocrine factors. When transplanted heterologously in male castrated guinea pigs, human cancer of the prostate did not grow. Similarly in human clinical observation cancer of the prostate has not been found in eunuchs. Stimulation of female guinea pigs with small amounts of androgen did not affect the growth of transplanted prostatic tumor, but stimulation of a female with massive doses aided in establishing a successful take of prostatic cancer. Carcinoma of the human prostate heterologously transplanted in guinea pigs lost a fundamental biologic activity, the production of the enzyme acid phosphatase. This fact was demonstrated by the absence of elevation of blood phosphatase level in tumor-bearing animals and absence of stain for phosphatase in sections of tissue removed from the guinea pig's eye. Heterologous transplantation of human prostatic cancer has indicated that the cellular nucleus holds the key to the biologic activity of malignant cells which have become autonomous, disordered in growth and uncontrollable in cellular metabolism.

Hypertrophic Pyloric Stenosis.—Schaffer and Erbes studied hospital records of 248 patients with pyloric stenosis who were admitted to Milwaukee Children's Hospital between June 1924 and May 1947. The Fredet-Rammstedt pyloromyotomy was done on 232 of these and 15 did not submit to operation. Sixteen deaths have occurred in this series, 9 of which were postoperative deaths. The 7 other fatalities occurred among the 15 patients treated medically. The authors stress the diagnostic importance of roentgenologic examination, since physical examination is not completely reliable. They believe that roentgenologic examination is too little used. Early diagnosis and adequate preoperative care are important and have reduced the mortality rate. There has been no death from pyloromyotomy in the last 172 operations at the Milwaukee Children's Hospital. Routine blood transfusions at the time of operation make for a smoother convalescence and a reduction in postoperative complications.

Sympathetic Interruption in Causalgia.—Shumacker and his associates say that interruption of the sympathetic pathways constitutes the most reliable, conservative and safe treatment of causalgia. This study is based on observations on 90 patients with major causalgia. Sympathetic blocks were performed by the introduction of 0.5 per cent procaine with epinephrine into the paravertebral space between the first and second dorsal ganglions in the case of lesions of the upper extremity, between the first and second lumbar ganglions in lesions of the lower extremity. Sympathetic ganglionectomy for the lower extremities was accomplished through an anterior extraperitoneal approach with the patient under spinal anesthesia. The upper extremities were denervated by the posterior preganglionic operation of Smithwick. There were no deaths and no serious complications. Fifty-seven patients were treated by permanent sympathetic interruption. Twenty-one responded well to single or repeated procaine sympathetic blocks. Two patients noted improvement following neurolysis Two patients obtained relief of pain following excision of a neuroma and neurorrhaphy. Eleven patients who subsequently obtained relief of pain from sympathetic procaine blocks had noted no relief after neurolysis, and 3 had observed no relief after neurolysis and neurorrhaphy. Similarly, 13 patients who were benefited greatly by sympathectomy had observed no change in pain following neurolysis, nor had 4 others following neurolysis and neurorrhaphy. In 3 there was a spontaneous subsidence of symptoms. The outcome in 5 patients is unknown. The authors conclude that sympathectomy is a safe and reliable treatment in causalgia. There is little likelihood that repeated procaine blocks will bring about permanent relief if the first injection causes cessation of pain only for the duration of the anesthesia. One should be encouraged to proceed with a course of procaine blocks, however, if the initial injection gives relief prolonged beyond the period of anesthesia or if successive blocks result in increasing periods of freedom from pain.

Tennessee State Medical Assn. Journal, Nashville
40:389-430 (Dec.) 1947

Voluntary Prepayment Medical Care Plans. J. R. McVay.—p. 389.
Analysis of Comparative Contract Benefits. L. Doctor.—p. 394.
Georgia and Its Health Program. M. E. Thompson.—p. 402.

Texas State Journal of Medicine, Fort Worth
43:479-548 (Dec.) 1947

SYMPOSIUM ON ANESTHESIA

I. Obstetric Use of Demerol. J. T. Downs.—p. 486.
II. Obstetric Saddle Block Anesthesia. R. R. Shepperd.—p. 488.
III. Local Anesthesia Technic for Cesarean Section. E. K. Blewett.—p. 490.
Scalenus Anticus and Cervical Rib Syndrome. J. M. Donald.—p. 495.
Surgical Treatments for Relief of Urinary Stress Incontinence. J. T Armstrong.—p. 500.
Paroxysmal Ventricular Tachycardia, with Special Reference to Treatment. M. R. Hejtmancik and G. R. Herrmann.—p. 505.
*Treatment of Acute Infectious Mononucleosis. J. H. Park Jr.—p. 508.
Atypical Mononucleosis Simulating Acute Appendicitis. O. Garcia.—p. 511.
Control Measures in Acute Respiratory Infections. W. G. Smillie.—p. 513.
Decade of Public Health Progress in Texas. G. W. Cox.—p. 517.
University of Texas Child Health Program: Report on Activities, 1944-1947. A. E. Hansen.—p. 522.
Children with Reading Problems. E. L. Aten.—p. 526.
Diagnosis and Management of Gout. E. L. Lindley and J. W. Middleton.—p. 530.

Treatment of Infectious Mononucleosis.—Park says that the treatment has been entirely symptomatic until his colleague, Dr. David Greer, recalled that Berkley had obtained favorable effects in 4 patients with infectious mononucleosis by the use of convalescent scarlet fever serum. Greer decided to try pooled human blood plasma in a patient with mononucleosis in whom other measures had proved ineffective. The favorable effects obtained with injections of 250 cc of pooled plasma on several successive days led to the use of this method in 11 children acutely ill with infectious mononucleosis. The treatment has been uniformly gratifying.

Texas State Journal of Medicine, Fort Worth
43:549-608 (Jan.) 1948

Tuberculosis in Infants and Children. W. E. Nelson.—p. 553.
Use of Radioactive Isotopes in Diagnosis and Therapy. J. R. Maxfield Jr. and J. G. S. Maxfield.—p. 558.
Preoperative and Postoperative Supportive Therapy in Gastro-Intestinal Surgery. J. M. Donald.—p. 562.
Gastro-Intestinal Symptoms in Disease of Urinary Tract: Radiologic Report. M. Davis and F. E. O'Neill.—p. 567.
Colostomy Closure. F. C. Usher.—p. 570.
Laboratory Aids in Diagnosis of Infectious Diarrhea in Children. S. W. Bohls.—p. 575.
Serodiagnosis in Syphilis. R. H. Kampmeier.—p. 577.
Persistent Positive Friedman Test in Hydatid Moles. May Owen.—p. 582.
Hospital Consultations in Otolaryngology. J. J. Shea.—p. 585.

Western J. Surg., Obst. & Gynecology Portland, Ore.
56:1-64 (Jan.) 1948

Problems Involved in Pancreatoduodenal Resection. J. W. Baker.—p. 1.
Papilloma of Breast. E. I. Bartlett.—p. 12.
Esophageal Hiatus Hernia. S. Everingham.—p. 16.
Use of Curare in Anesthesia. J. J. Bonica.—p. 20.
Artificial Reproduction of Cyclic Changes in Cervical Mucus in Human Castrates: with Clinical Correlations. A. R. Abarbanel.—p. 26.
Methods of Increasing Fertility in Domestic Animals. M. G. Fincher.—p. 35.
*Treatment of Graves' Disease with Radioactive Iodine. E. M. Chapman.—p. 47.
Neoplastic Disease of Thyroid Gland. J. C. McClintock and G. H. Klink Jr.—p. 52.

Radioactive Iodine in Grave s' Disease.—Radioactive iodine is prepared by the nuclear bombardment of tellurium in the cyclotron, using 14 million electron volts deutrons. The principal isotopes produced are I^{130} (with a half-life of twelve hours) and I^{131} (half- life, eight days). From observations in treating 45 patients with diffuse goiters and hyperthyroidism, Chapman believes that radioactive iodine with a half-life of twelve hours is an effective single therapeutic agent. Like other methods of therapy it has certain limitations. Its possible late toxic effects will have to be observed with the passage of time. Contraindications to its use now seem to be pregnancy beyond the first month and disease of the kidneys.

Yale Journal of Biology and Medicine, New Haven
20:135-224 (Dec.) 1947

Application of Tests of Respiratory Physiology for Clinical Evaluation of Pulmonary Pathology. W. E. Bloomer.—p. 135.
Variations in Plasma Alpha-Amino Acid Nitrogen of Schizophrenics. Evelyn B. Man, Patricia G. Bettcher and W. T. Brown.—p. 167.
Plasma Alpha-Amino Acids, Serum Lipids and Proteins After Prefrontal Lobotomy in Seven Schizophrenic Patients. Evelyn B. Man, Patricia G. Bettcher, Claire M. Cameron and W. T. Brown.—p. 175.
Preliminary Studies on Agent of Canine Pharyngo-Laryngo-Tracheitis. W. E. Gustafson.—p. 185.
Nutrition of Mouse: VI. Growth Rates of Two Strains on Stock Rations and on Purified Diets. P. F. Fenton, G. R. Cowgill and Marie A. Stone.—p. 197.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:987-1018 (Dec. 20) 1947

Experimental Investigations of Paradontal Disease: VI. Further Clinical Studies of Sugar Cane Gnawing in Treatment of Gingival Disease. J. D. King.—p. 987.
*Serologic Diagnosis of Epidemic Influenza by Complement Fixation Reaction. L. Hoyle and R. W. Fairbrother.—p. 991.
General Practitioner and Influenza Problem. C. H. Stuart-Harris.—p. 994.
Amebic Abscess of Left Buttock in Symptomless Cyst Carrier. T. C. Morton and S. F. Soutar.—p. 996.
Case of Severe Pre-Eclamptic Toxemia with Central Placenta Praevia. G. Newbold.—p. 997.

Serologic Diagnosis in Influenza.—Hoyle and Fairbrother point out that the direct isolation of influenza virus from cases of human influenza by inoculation of the ferret or the fertile hen's egg is not always successful. Serologic methods of diagnosis are therefore of great importance. The virus neutralization test is too laborious and technically difficult for extensive use, but two other methods are available: (1) the complement fixation test of Fairbrother and Hoyle (1937) and (2) the red cell agglutination inhibition test of Hirst (1941, 1942). These two tests differ immunologically and do not always give comparable results. The complement fixation test is more satisfactory than the Hirst test for the diagnosis of epidemic influenza. The authors summarize the results of over ten years' experience of the former. They stress that the complement fixation titers of normal human serums are constant at a low level; while the majority of convalescence serums show titers above the normal range. The complement fixation test is species specific, distinguishing between virus A and virus B, but shows no strain specificity such as is seen in the red cell agglutination inhibition test. The complement fixation test is therefore superior to the red cell agglutination inhibition test for the serologic diagnosis of epidemic influenza. The complement fixation test is not suitable to assess the antibody response to vaccination with influenza virus.

Lancet, London

2:897-932 (Dec. 20) 1947

*Treatment of Tuberculosis with Streptomycin and Sulphetrone. D. G Madigan, P. N. Swift, G. Brownlee and G. P. Wright.—p. 897.
Primary Splenic Abscess. M. Gelfand.—p. 904.
Antithyroid Activity of Ergothioneine in Man. E. B. Astwood and M. M Stanley.—p. 905.
Wernicke's Encephalopathy Simulating Diabetic Coma. F. A. Jones and V. C. Robinson.—p. 907.
Death From Renal Anoxia After Myanesin Anesthesia. T. F. Hewer and R. F. Woolmer.—p. 909.
Bilateral Zoster: Report of Case. E. W. Prosser Thomas.—p. 910.

Streptomycin and "Sulphetrone" in Tuberculosis.—Madigan and his associates made two studies: The first aimed to assess the efficacy of streptomycin; the second to evaluate the possible synergic action of streptomycin and sulphetrone, in the light of the significant synergic action between the two agents reported in tuberculous guinea pigs by Brownlee and Kennedy. Sulphetrone is 4,4′-bis (gamma-phenyl-N-propylamino) diphenylsulfone-tetrasodium sulfonate. In 17 cases of tuberculosis affecting different organs parenteral streptomycin was given for periods of from thirteen hours to three months. The intramuscular dose of 0.2 to 0.4 Gm. of streptomycin base at four hour intervals gave blood levels of 6 to 16 micrograms per cubic centimeter. The intrathecal dose of 0.2 to 0.4 Gm. injected once daily gave cerebrospinal fluid levels of 3 to 80 micrograms per cubic centimeter after twenty-four hours. In 6 of the 17 cases sulphetrone was also given orally, leading to a blood sulphetrone level of 7 to 8 milligrams per hundred cubic centimeters in 4 cases. Of 4 cases of uncomplicated meningitis treated with streptomycin alone, 1 showed a temporary modification of the usual course of the disease. Within the same group, 1 adult with proved tuberculous meningitis complicated by extensive fibrocaseous pulmonary tuberculosis recovered from the meningitis. Tuberculosis of the lungs did not improve. In 3 cases of miliary tuberculosis of the lungs complicated by tuberculous lesions elsewhere there was radiologic evidence of temporary progression and apparently total regression of the miliary tubercles. In 2 of these cases, in which necropsies were done, histologic study showed that the original tubercles were healed or healing and that acid-fast bacilli were absent. The third patient, who received sulphetrone, also appeared to do better. All twelve strains of tubercle bacilli isolated before treatment were sensitive to streptomycin; all six strains isolated immediately after treatment were five to a hundred times more resistant. In 2 cases (1 of generalized lymphatic tuberculosis, 1 of chronic pulmonary tuberculosis) clinical resistance developed during adequate therapy. The possibility of producing resistant strains which may be stimulated to rapid reproduction contraindicates the administration of streptomycin in the presence of a chronic lesion of lungs or lymph nodes. The intractable nature of tuberculous meningitis and miliary tuberculosis justifies the use of streptomycin.

Medical Journal of Australia, Sydney

2:649-676 (Nov. 29) 1947

*Corpulence in Childhood and Adolescence: Clinical Study. H. B. Graham.—p. 649.
Difficulties and Disappointments in Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax. C. Swaine.—p. 658.

Corpulence in Childhood and Adolescence.—Graham discusses constitutional patterns and etiologic factors and the system of treatment he has developed on the basis of a close study of 52 cases of corpulence in childhood and adolescence. He stresses that the cause is predominantly endogenous rather than exogenous. The treatment included oral thyroid medication in unusually large dosage, supported by psychotherapy, dietetic control, congenial physical activities, accurate measurements and periodic observation and supervision. By means of indexes of weight, height and size the efficacy of treatment has been assessed and demonstrated, and by the graphic plotting of statistical data the significance of the results obtained by thyroid therapy has been proved. It is no longer reasonable to blame the children or their parents for the obesity, nor is it justifiable to underfeed the patients or to deny them the benefits of thyroid medication in adequate dosage.

Deutsche medizinische Wochenschrift, Stuttgart

72:593-624 (Nov. 7) 1947. Partial Index

Oculomotor Disturbances Following Cerebral Trauma: Their Diagnostic and Prognostic Significance. R. Wanke.—p. 593.
*Prophylaxis of Embolism at Freiburg Surgical Clinic and Its Results. E. Rehn.—p. 595.
Histamin Inhibitors. J. Kimmig.—p. 598.
Clinical Aspects and Treatment of Skin Carcinomas. H. Walther.—p. 603.
*Gastroduodenal Ulcers in the Elderly: Clinical Aspects and Pathogenesis. K. Spang.—p. 605.
The Ulcer Problem Considered from Standpoint of the Pathologic Reflex. H. J. Zeigert.—p. 608.
Indications for Surgical Treatment of Gastric and Duodenal Ulcers. J. Kirsch.—p. 611.

Prophylaxis of Embolism at Surgical Clinic.—Rehn shows that in order to prevent embolism, stress must be placed on prophylaxis and on combating the growing and the massive thrombus. The influx of prothrombin into the blood stream plays an important part in the development of thrombosis, and prothrombin is regulated by vegetative impulses. The surgical trauma with the related factors of fear and pain exert a great influence on the vegetative system. Climatic changes also have been shown to be associated with an increase in the prothrombin index. All these factors indicate the vegetative nature of the postoperative complications. The clinical execution of prophylaxis involves chiefly the employment of the anticoagulants, heparin and "dicumarol." However, if these substances are used, there is danger of postoperative hemorrhage; for this reason a strict watch must be kept on the prothrombin index and the coagulation time. Prevention of all thromboses is impossible unless all surgical patients are routinely subjected to prophylaxis with anticoagulants, but this is inadvisable. When the control test indicates danger of thrombosis, then prophylaxis must be instituted. At the author's clinic it became possible to avoid embolism, while other postoperative complications were reduced, which seems to indicate that they may be the result of unrecognized thromboses.

Gastroduodenal Ulcer in the Elderly.—Spang is concerned with the form of peptic ulcer that usually occurs at the onset of the period of involution, that is, after the age of 50. A statistical analysis of 4,500 cases of ulcer convinced him that this type of ulcer is increasing. Ulcer in patients over 50 is usually gastric, not duodenal; the ratio of incidence is practically reversed in comparison with that in the younger age groups.

Whereas the peak of frequency for duodenal ulcer is around the age of 30, for gastric ulcer it is around the age of 50. The predominance of ulcer in men decreases, in that with increasing age ulcers develop in more women. Ulcers are larger in size in the older age group. Extremely large ulcers, 5 cm. in diameter, are not a rarity. Other characteristics are a comparatively short anamnesis, lack of periodicity of the pains and a lesser tendency to heal. It is suggested that arteriosclerotic changes in the stomach play a part in the pathogenesis of ulcer in patients over 50, in that such patients frequently have signs of a generalized arteriosclerosis. The author believes that cerebral apoplexy, cardiac or renal infarct and gastric ulcer in elderly persons are related in that all are of arteriosclerotic origin. Predisposition to ulcer even in the aged seems to be found particularly in those of slender build, but the manifestation seems to depend on the combination of this constitutional type with arteriosclerosis.

Revista de la Asociación Méd. Argentina, Buenos Aires

61:767-820 (Nov. 15) 1947. **Partial Index**

*Primary Diffuse Meningitic Sarcomatosis. J. C. Ortiz de Zaratè and T. Insausti.—p. 795.

Primary Diffuse Meningeal Sarcomatosis.—A man aged 24 presented a syndrome simulating tuberculous meningitis. There was acute papillary edema and intracraneal hypertension. The cerebrospinal fluid was normal. There was blurred vision and occasional convulsions. The disease lasted three months. A biopsy was performed twice. The diagnosis was that of lymphocytic meningitis. Necropsy revealed primary diffuse meningeal sarcomatosis. The disease is rare and is rapidly fatal.

Revista Cubana de Pediatría, Havana

19:635-714 (Nov.) 1947. **Partial Index**

*Lymph Node Bronchus Perforation in Primary Tuberculosis in Infants. T. Valledor, J. C. Mérida and A. Guernica.—p. 635.

Lymph Node Bronchus Perforation in Primary Tuberculosis.—The subjects of this report were 7 infants and a child 10 years of age. The patients presented fever and symptoms of tuberculosis. The clinical and roentgenologic diagnosis of perforation was verified in 4 cases at necropsy and in 2 cases by bronchoscopy and roentgen examination of the chest. It was found at necropsy that one or more of the hilar and mediastinal lymph nodes were enlarged and caseous. Lymph node perforation into the right main bronchus took place in 2 cases. In the case of the child of 10 years, three young Ascaris lumbricoides were found in the perforating node. Perforation was bronchial, esophageal and pleuromediastinal in 1 case and tracheal in another. Catheterization of the perforated bronchus during bronchography and aspiration of caseous material was followed by recovery of 1 patient. The roentgenogram taken one year later showed a calcified nodule in the middle lobe of the lung. A patient had an emergency tracheotomy with relief of acute dyspnea from perforation. In 2 cases the symptoms of perforation followed a favorable course.

Schweizerische medizinische Wochenschrift, Basel

77:1243-1266 (Nov. 29) 1947. **Partial Index**

Treatment of Macrocytic Anemia with Folic Acid. G. L. Scherk.—p. 1243.

*Surgical Treatment of Chronic Arteritis Obliterans. H. Welti.—p. 1245.

Clinical Importance of Pantothenic Acid in Diseases of Respiratory Organs. E. Stangl.—p. 1249.

*Pathogenesis and Therapy of Ulcus Disease of Stomach with Special Consideration of Vegetative Constitution. H. Fredenhagen.—p. 1251.

Surgical Treatment of Arteritis Obliterans.—Welti treated by lumbar sympathectomy 20 patients with chronic arteritis of the lower limbs, 18 men and 2 women, 16 of whom were over 50 years of age and 4 between the ages of 28 and 45. The first and second ganglions were removed systematically by the retroperitoneal route and the third and fourth ganglions were likewise removed, provided that conditions were favorable. Considerable and permanent improvement occurred in 6 patients, in whom intermittent claudication disappeared and satisfactory vascularization was reestablished. In 14 patients surgical intervention was followed by either temporary or permanent disappearance of pain from decubitus. In some cases sympathectomy delayed amputation and facilitated a more economic one. Sympathectomy secured improved vitality of the involved extremities as well as of the amputation stumps. Favorable results were obtained particularly in the 4 younger patients and in patients with unilateral lesions. Parathyroidectomy may be considered in cases in which sympathectomy fails, provided that the vascular lesions are not too extensive. This operative intervention gave satisfactory results in 2 patients with localized gangrene of the toes in whom lumbar sympathectomy failed.

Vegetative Constitution in Pathogenesis and Treatment of Ulcers of Stomach.—Fredenhagen studied the significance of constitutional factors in 300 patients, 213 men and 87 women, between the ages of 20 to 80 years, 100 with ulcers of the stomach, 100 with duodenal ulcers and 100 with chronic gastritis which in many instances may be considered as a premonitory stage of ulcer disease. Symptoms of vagotonia were observed much more frequently than symptoms of sympathicotonia. The vagotonia was most pronounced in patients with duodenal ulcers and with recurrences of chronic ulcers; vagotonia did not decrease with higher age. Vegetative dystonia may be ascertained by simple methods; it is definitely and frequently associated with the occurrence of ulcers. Thus the assumption has been confirmed that vegetative dystonia represents a constitutional symptom of a disposition toward ulcus disease. By taking this fact into account the early detection of persons who are predisposed to become chronic carriers of ulcers will be feasible. In many cases the duration of the disease may definitely be shortened by early surgical intervention with reduced risk. The vegetative lability may be diminished by resection of the stomach and proper postoperative treatment with continued ulcer diet, administration of "bellergal" (a proprietary compound containing the alkaloids of belladonna, ergotamine tartrate and phenyl ethyl barbituric acid) and by abstinence from nicotine. The preulcerous character of chronic gastritis may likewise be recognized more easily with the concept of the vegetative constitution and early surgical treatment may be performed under certain circumstances.

Wiener klinische Wochenschrift, Vienna

59:789-804 (Dec. 5) 1947. **Partial Index**

*Hematogenous Osteomyelitis and Its Treatment. E. Domanig.—p. 789.

Special Form Taken by Pneumonias During Last Year. W. Gröger and E. Treml.—p. 794.

Treatment with Pervitin (N-Methylamphetamine) in Intrauterine Asphyxia. A. Rockenschaub.—p. 797.

Appendix in Region of Flexura Lienalis. A. Dessewffy.—p. 799.

Hematogenous Osteomyelitis.—The observations reviewed by Domanig were made on 159 children and 145 adults who received treatment at his clinic between 1934 and 1946. The genesis and clinical course of hematogenous osteomyelitis is that of an endogenous sepsis, but the sources of this infection are usually obscure, except in cases of osteomyelitis of the calcaneus. In 7 cases of this type there had always been external injuries in the region of the heel. In no case of multiple osseous foci was the author able to ascertain involvement of the calcaneus, and from this he concludes that osteomyelitis of the calcaneus is not of hematogenous origin. Roentgenologic observations as well as boring into the marrow has convinced the author that the disease process of osteomyelitis is not primary in the medullary cavity. Sometimes only the cortex of the bone is involved and the medullary cavity is free from pathologic changes; at other times only the periosteum is involved. The author believes that the disease is really an osteitis, an embolic infection of the bone, which involves limited or extensive parts of the bone, depending on the position of the involved vascular branch. In some cases it may be a panosteitis. A noteworthy aspect is that the epiphyses remain free from infection in osteomyelitis. The clinical picture of osteomyelitis varies greatly. The author briefly mentions the various methods of treatment that have been in use and shows that the introduction of penicillin has greatly improved the prognosis, provided the diagnosis is made early and treatment is begun promptly. He administers penicillin in doses of from 1,000,000 to 2,000,000 units, but he also resorts to blood transfusion and measures that support the circulation. Immobilization in a fenestrated plaster cast is essential. Early administration of penicillin will prevent the complete destruction of the diseased part of the bone, and if the involved area is small complete restoration is possible. More extensive processes require surgical treatment, which is most advantageously carried out during the eighth or tenth week.

Book Notices

Private Enterprise or Government in Medicine. By Louis Hopewell Bauer, A.B., M.D., F.A.C.P., president, Medical Society of the State of New York, 1917-1918. Fabrikoid. Price, $5. Pp. 201, with 2 illustrations. Charles C Thomas, 301-327, E. Lawrence Ave., Springfield, Ill., 1918

"Private Enterprise or Government in Medicine" is a thoughtful presentation of the strengths and deficiencies of our present system of medical care. The author has carefully analyzed the growth of government in medicine and public health. Sickness insurance programs are briefly traced from their earliest inception in Germany through England, Russia, Sweden and other foreign nations With this background the compulsory sickness insurance movement in the United States is exposed for its true worth

The earliest moves relative to compulsory sickness insurance in the United States date back to 1910 and 1911. Yet "little was heard of the subject until after the report of the Committee on the Costs of Medical Care in 1932." This report together with the National Health Survey (1933) and the National Health Conference (1938) have been the primary sources of data for those interested in promoting a compulsory sickness insurance program. Dr. Bauer concludes that "there are four closely related groups which are back of the movement for compulsory sickness insurance. Two of them are composed of small groups of physicians and two are lay groups, although one of the latter has a physician as chairman."

After tracing the compulsory sickness movement in the United States a chapter is devoted to voluntary insurance. Here is shown the part played by the medical society plans, the industrial plans, commercial insurance and the possibilities of such projects as the Health and Hospital Fund of the United Mine Workers Union.

The author also portrays the role of the American Medical Association in improving the health of the people of the United States. "The American Medical Association has done more to improve the standards of medical care, drugs and other therapeutic agents, to raise the standards of hospitals, to further public health, to fight the inroads of nostrums and quackery than all other organizations put together. The very development of the United States Public Health Service was sponsored by the American Medical Association. The Pure Food and Drug Laws have been furthered by that association." Dr. Bauer briefly develops the other activities of the Association and their influence in improving the standards of health care. "The only thing," he states, "which the American Medical Association has steadily and consistently opposed has been compulsory sickness insurance." Presenting facts clearly and concisely, he shows the Association to be progressive, not accepting change for the sake of change, but changing when change appears justified.

The final chapter summarizes the ideals to be met and the method of meeting them. Here is presented a coherent program for meeting the needs of the country for a better distribution of medical care.

In this period of ultimate conclusion between two technics for answering the problem of more medical care for more people in the United States, this volume offers definitive material such as is not so briefly and succinctly available elsewhere. Here the reader will find the background of the problem, some basic facts about the health of our nation and a consideration of the main solutions that have been offered. Here is a clear distinction between those aspects of the problem that are medical and those that are economic.

Dr. Bauer concludes, as will any logically minded person, that we can proceed step by step toward raising still higher the best quality of medical care now avialable anywhere in the world. He recognizes the need for special attention to problems of the aged, including chronic diseases.

The one lack in what is otherwise an exceedingly fine contribution to a highly debated subject is a comprehensive index.

May's Manual of the Diseases of the Eye for Students and General Practitioners. Edited by Charles A. Perera, M.D., Assistant Clinical Professor, College of Physicians and Surgeons, Columbia University, New York. Nineteenth edition. Cloth. Price, $4. Pp. 521, with 387 illustrations. Williams & Wilkins Co., Mt. Royal and Guilford Aves., Baltimore 2, 1947.

Nineteen editions of this work attest its usefulness. Since the last edition Dr. May died, and the present edition is revised and edited by Dr. Perera, who has worked with Dr. May since the fifteenth edition. The new edition emphasizes penicillin therapy, new theories of color vision, the effects of hormones and the studies that have been made of congenital cataract following maternal rubella. A supplement is devoted to the most recent tests of the eye required for military and other governmental services.

Physical Fitness, Appraisal and Guidance. By Thomas Kirk Cureton, Jr., M.A., M.P.E., Ph.D., Professor of Physical Education and Director of the Physical Fitness Research Laboratory of the University of Illinois, Urbana. Assisted by Frederick W. Kasch, B.S., M.S., Director of Physical Education at the Colleges of Medicine, Dentistry and Pharmacy at the University of Illinois, Chicago, and John Brown, B.S., Assistant Director of Physical Education, Colleges of Medicine, Dentistry and Pharmacy, and W. G. Moss, M.S., Ph.D., Instructor in Physiology, College of Medicine, University of Illinois, Chicago. Cloth. Price, $6. Pp. 566, with 129 illustrations. The C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1917.

The physical fitness committee of the professional schools of the University of Illinois tested all the first year students over a period of three years with a battery of tests. The project was cooperative and utilized many of the different departments in the university. The authors begin by defining physical fitness as distinct from emotional, mental and social fitness. They consider the development of the various tests used, the classification of body types, the relation of weight to physical fitness and the significance of tests of the heart rate, the blood pressure and the basal metabolic rate. They then discuss strength, motor fitness and athletic performance. The book is thus a guide to the appraisal of physical fitness and a record of research such as has not been heretofore available.

The Diagnosis of the Acute Abdomen in Rhyme. By Zeta. Cloth. Price, 5s. 6d. Pp. 88, with drawings by Peter Collingwood. H. K. Lewis & Co., Ltd., 136 Gower St., London, W. C. 1, 1947.

An amazing contribution to medical readers is this collection of poems by an author who chooses to call himself or herself Zeta. The book covers such subjects as appendicitis, perforated ulcer, colics and ectopic gestation with rhymes and fanciful illustrations. The rhymes are bad and the book is boresome. For example:

"Now Strangulation of a coil of gut
Means that the blood-supply is from it cut."

and, in a discussion of biliary colics:

"The women say 'tis much worse than the giving birth
to baby
Though which they'd have if given choice, well, that is
just may be."

and finally, on ectopic gestation:

"In seeking for his mate the eager sperm
Up the Fallopian Tube his way doth worm"

accompanied by a picture of the eager sperm with a checked cap and a striped tie.

Office Manual for the Medical Secretary. By Evangeline Markwick, Ph.D., Instructor in Secretarial and Medical Secretarial Studies, Green Mountain Junior College, Poultney, Vermont, Agnes Erickson, M.A., Instructor in Secretarial and Medical Secretarial Studies, Colby Junior College, New London, New Hampshire, and M. Herbert Freeman, Ph.D., Head of Business Education Department, New Jersey State Teachers College, Paterson, N. J. Cloth. Price, $2.40. Pp. 401, with illustrations. The Gregg Publishing Co., 270 Madison Ave., N. Y. 16; 37 S. Wabash Ave., Chicago 3, 1947.

The authors wrote to 539 doctors, sending them a questionnaire on the duties and training considered desirable for a medical secretary. The authors also secured replies from 124 medical secretaries. This book supplies a careful consideration of the job of the medical secretary from many points of view, with a whole chapter on the telephone. It discusses also the stenographic, mailing and filing work of the secretary. Apparently the first class medical secretary will also have information about editing manuscripts, collecting bills, helping with the banking and finance of the office, giving advice on legal matters and perhaps putting in her spare time in the laboratory. A special section provides shorthand forms for medical words and a good deal of information about punctuation and grammar

Infant Nutrition: A Textbook of Infant Feeding for Students and Practitioners of Medicine. By P. C. Jeans, A.B., M.D., Professor of Pediatrics, College of Medicine, State University of Iowa, Iowa City and Williams McKim Marriott, B.S., M.D. Fourth edition. Cloth. Price, $6.50. Pp. 516, with 36 illustrations. The C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1947.

The fourth edition of this popular textbook contains many revisions, especially in the chapters devoted to growth and development, mineral and water metabolism and vitamins. The entire book is well organized and the subjects are discussed clearly and briefly, yet the essentials of infant nutritionals are set down. The print is clear and easy to read. This volume should find increased popularity among medical students, general practitioners and pediatricians.

Medical Addenda: Related Essays on Medicine and the Changing Order. Studies of the New York Academy of Medicine Committee on Medicine and the Changing Order. Cloth. Price, $1.75. Pp. 156. Commonwealth Fund, 41 E. 57th St., New York 22, N. Y.; Oxford University Press, Amen House, Warwick Sq., London E. C. 4, 1947.

The excellent contributions published by the New York Academy of Medicine Committee on Medicine and the Changing Order are supplemented by a number of essays which are thoughtful and which point definitely to current problems in medical affairs. The essays include:

The Doctor Himself, by James Alexander Miller, M.D.
Psychosomatic Medicine, by Louis Hamman, M.D.
Medical Social Work, by Mary Antoinette Cannon and Harriet M. Bartlett
Psychiatric Social Work, by Winifred W. Arrington
Rehabilitation and Convalescence, by Howard A. Rusk, M.D.
Chronic Diseases, by Ernst P. Boas, M.D.

Some of them have appeared in medical periodical literature and are thus elsewhere available.

Antigonadotrophic Substances: Experimental and Clinical Studies on the Formation of Antigonadotrophic Substances Under Treatment with Gonadotrophic Hormones. By Erling Ostergaard. Translated from Danish by Hans Andersen, M.D. Denne Afhandling er af det laegevidenskabelige Fakultet antaget til offentlig at forsvares for den medicinske Doktorgrad, Kobenhavn. Paper. Pp. 184, with 25 illustrations. Ejnar Munksgaard, Norregade 6, Kobenhavn, K, 1942.

This monograph contains an exhaustive review of the published reports on the existence, production and actions of antigonadotropic substances. The author has also included original data from his own investigations, derived both from laboratory and from clinical studies. Considerable attention is paid to immunologic relationships and the specificity of the various antihormones. The author appears to have demonstrated the production of antigonadotropins to heterologous gonadotropins but does not find evidence of their production following administration of homologous gonadotropins. He advances evidence that the gonadotropins are produced in the reticuloendothelial system and, like ordinary antibodies, are found in the globulin fraction of the serum. He also presents data tending to show that the biologically active part of the gonadotropin is a relatively simple chemical compound in combination with a protein component. The clinical studies are interesting because an explanation is offered for the difference in action of various gonadotropic substances in human beings and for the failure, in many instances, to produce therapeutic responses in hypogonadal patients. The author finds that pregnant mare serum gonadotropin will induce antigonadotropin formation in man after protracted treatment, whereas no antihormone appears to be formed following administration of chorionic gonadotropin. He also finds that chorionic gonadotropin is relatively ineffective in combating ovarian insufficiency, but a combination of chorionic gonadotropin and pregnant mare serum gonadotropin is efficacious. Because of antigonadotropin formation, it is recommended that clinical usage be limited to treatments of three-weeks' duration followed by several weeks' rest before instituting another course of treatment. This book is an excellent summary of the present knowledge of antigonadotropins, but it will be of interest primarily to the laboratory endocrinologist rather than to the clinician.

Adventures of the Mind. By Arturo Castiglioni, M.D. Translated from the Italian by V. Gianturco. Cloth. Price, $4.50. Pp. 433, with illustrations. New York: Alfred A. Knopf, 1946.

In an orderly fashion Professor Castiglioni spins the yarn that makes an intriguing pattern of man's attempt to interpret the ageold problems of life, death, disease, magic and changes in personality. Frequent references to Sir J. G. Frazer's monumental book, "The Golden Bough," demonstrate the primitive influence of magic, rites, amulets and talismans on much of man's thinking. Its influence is still operative in the so-called modern thinking of certain cults.

The second part of the book deals with magic during the middle ages. The Chinese developed an intricate system of numbers and letters, calendars and rites. They were so methodical that they described five hundred different kinds of pulse and one thousand different places for acupuncture. American Indian tribes created a wide variety of drugs among the Aztecs such as coca and other narcotics and a systematic mythology as totem birds. A fantastic magic closely interwoven with mysticism and religion became the basis of Hindu magic. Transmutation of life in polyanimalistic forms is still regarded by many Hindus as the normal migration of the soul. The Egyptian placed more reliance on the priest and the magician. In times this gave rise to a series of amulets, symbols and signs; especially favored were those signs inscribed on scarab. A more speculative metaphysical and monotheistic approach was used by the Hebrews.

The third portion of the book carries the story of magic to modern times. Separation of the favorable events of magic as a part of religion and hostile or destructive forces as evils, witches or devils were a refinement and extension of primitive man's beliefs. Following these ideas early scientific experimenters were considered to be dealers in black magic and evil men. Bubonic plague of the fourteenth century was blamed on demons, the stars, corruption of morals and other aspects of black magic. There spread through Europe mass psychosis that consisted of flagellation, St. Vitus dance and other forms, but, thanks to the stern measures of the church, it was finally eradicated. Later the rise of spiritism and finally the awakening of the scientific method led to decreased emphasis on magic. Psychotherapy through suggestions that heal is given in historical perspective. Mass psychology for the relief of natural pent-up individual hostility with the acceptance of primitive political beliefs is convincingly described, and its adoption in some modern civilizations as in Mussolini's Italy, Hitler's Germany and Hirohito's Japan is a more recent proof of its acceptability. Unfortunately some of these beliefs in modified forms are still offered to unsuspecting youth in many countries throughout the world.

Pharmaceutical Arithmetic: A Complete Course in Everyday Problems in Dispensing, Manufacturing and Hospital Pharmacy. By Ignatius J. Bellafiore, Assistant Professor of Pharmacy, St. John's University College of Pharmacy, Brooklyn, N. Y. Second editon. Loose-leaf. Paper. Price, $3.75. Pp. 396, with illustrations. The C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1947.

This volume is a comprehensive exposition of the arithmetical computations with which the pharmacist may be confronted. Designed primarily as a text for a course given by the author, it may be adaptable to other situations. The author has done a thorough job of presenting the subject and has included numerous examples of practical pharmaceutic arithmetic, problems and review questions. He makes the justifiable assumption that most students have never learned or have forgotten all arithmetic and algebra except, perhaps, that two and two usually equal four. The metric system is introduced first and computations involving weights and measures, specific gravity, percentage preparations, dilution and alligation, and temperature conversion are discussed. The more complex apothecary's system is discussed in the second half of the book. The Appendix contains several useful tables. This book should prove useful as a teaching textbook in pharmacy schools, and parts of it could be used to advantage by medical students during a course in pharmacology.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

BRAIN INJURY FROM HIGH SCHOOL BOXING

To the Editor:—Discuss the hazard of boxing wherein the individual gets repeated blows on the head, especially if continued over long periods of time. May this punishment result in mental impairment? What is the literature covering this subject.

H. F. Schroeder, M.D., Marinette, Wis.

Answer.—A great number of physicians and physical educators have become convinced that boxing cannot be defended as an appropriate sports activity for high school boys.

A. H. Steinhaus (Statement on Boxing in High Schools, *J. Health & Phys. Educ.* **15:**384, 1944) in reviewing the data on this subject asserts that present knowledge appears to warrant acceptance of the following statements:

1. Any serious head injury even without skull fracture or knockout may be accompanied by pinpoint hemorrhage or other brain injury.
2. Such injuries may be suffered equally by experienced or inexperienced boxers in their first encounter or after long experience.
3. There are many portions of the brain in which destruction of a small amount of nerve tissue does not cause paralysis or other noticeable changes in behavior. This is especially true in certain subcortical centers . . . and of the cortex where the highest human faculties such as delicate coordination, memory, speech, self control and the power of reasoning are lodged. Subsequent injuries add to earlier ones, since each is permanent. The exact location and extent of each injury and the total of all injuries will determine the extent of loss of mental powers or bodily control.

A great deal of the strength and endurance which has been attributed to boxing comes about as a result of the training program in which the boxer takes part. These activities can be a part of the preparation for participation in other sports or of a broad program of physical education. In boxing the primary target is the head, and the goal is to injure or physically punish the opponent with the knockout as the eventuality. This is at variance with sports in which injury is incidental, as for example in football where the touchdown is the goal and injury only a possible by-product.

E. J. Carroll (Punch Drunk, *Am. J. M. Sc.* **191:**706, 1936) after two years' study of boxers to develop a medical understanding of the problem concluded: "It is probable that no head blow is taken with impunity and that each knockout causes definite and irreparable damage."

Stating that the incidence of mental injury among those who have stayed in boxing long enough is nearly 50 per cent, H. S. Martland (Punch Drunk, *J. A. M. A.* **91:**1103, 1928) added that "this seems to be good evidence that some special brain injury due to their occupation exists."

Ernst Jokl in his book on "The Medical Aspects of Boxing" (Pretoria, South Africa, J. L. Van Schaik, Ltd., 1941) says that "there is no evidence to support the frequent allegation that boxing is a particularly valuable method of developing character, determination and personality . . . that the refusal to realize the danger of boxing is responsible for many a boxer's life being spoiled; that boxing often exerts a brutalizing influence on spectators and that it appeals to the lowest human instincts."

Kenney, Thacker and Gebhart (The Evaluation of Boxing as a College Activity, *Research Quart.* **11:**80, 1940) polled opinion of health service directors in some sixty colleges and universities. Only 15 per cent considered boxing an appropriate high school activity, and slightly more than 50 per cent did not favor the sport for intercollegiate competition.

Proponents of "controlled" boxing for high school boys argue that with heavy gloves, adequate protection and close supervision the activity differs sharply from prize fighting.

However, Steinhaus in the article previously cited raises the following questions in respect to this reasoning and suggests that a single answer "*no*" invalidates boxing as a high school activity:

1. Can the full advantages distinctively credited to boxing be attained short of genuine "all out" boxing?
2. Can the average high school coach or teacher control a large class of boxers to insure safe boxing?
3. Is there available and on hand a thoroughly safe head gear to protect not against head injury, but brain injury?
4. Is the average boy who becomes good in the sport willing to use his skill only in self defense and unlikely to use the sport as an offense in overcoming opponents both in and out of athletic contests?
5. Can a high school teach boxing without at once giving implied approval to amateur boxing tournaments and to the professional ring?

To protect the welfare of high school boys participating in interscholastic activities the Legislative Council of the American Association for Health, Physical Education and Recreation adopted the following resolution (on file in the office of the executive secretary of the American Association for Health, Physical Education and Recreation, Washington, D. C.) in April 1940:

> Whereas, There seems to be an increasing tendency to promote interscholastic boxing in some communities and on the part of some individuals, and
>
> Whereas, Boxing on a highly competitive basis is known to be potentially dangerous to the safety and welfare of boys participating; be it therefore
>
> *Resolved,* That the American Association for Health, Physical Education and Recreation recommends the discontinuance of interscholastic boxing for boys 18 years of age or younger; and be it further
>
> *Resolved,* That this Association shall encourage all school administrators to immediately take steps to eliminate boxing from their interscholastic athletic programs.

DYSPHONIA

To the Editor:—What is the treatment for a boy aged 19 with a very high pitched voice? This began at the age of 14 when his voice "changed," but it has persisted. His voice is sometimes pitched low for a word or two in a sentence but is predominantly high in pitch. The larynx was well visualized with a mirror and abnormality was not noted, except that the cords appeared very tremulous and vibrated at a rapid rate. Could a spray be used to make the cords less pliable? This condition becomes more embarrassing to the patient each year.

M.D., Alabama.

Answer.—A dysphonia changing from a low pitched to a high pitched voice in a boy 19 years of age without visible abnormality other than a bilateral rapid tremor of the vocal cords is probably of psychoneurogenic origin. However, tremors of the vocal cords have been observed in multiple sclerosis, parkinsonism, paresis, encephalitis, syringomyelia, alcoholism and hyperthyroidism. Bilateral jerking movements of the vocal cords have been seen with tetanus, chorea and hydrophobia. These conditions which may produce tremors or jerking movements of the cords should be eliminated as possible etiologic factors before deciding that the dysphonia in this boy is of psychoneurogenic origin.

Local applications or other treatment to the larynx or vocal cords is not indicated.

VIABILITY OF POLIOMYELITIS VIRUS

To the Editor:—How long will the virus of poliomyelitis live on dead animal tissue and excretions at ordinary temperatures; on other articles, such as clothing? Does freezing the virus prolong its life?

M.D., Ind.

Answer.—The virus of poliomyelitis as naturally present in feces or in central nervous tissues will remain viable almost indefinitely if kept at temperatures between minus 20 and minus 70 C. Information with regard to the viability of the virus in other mediums and at room temperature is incomplete; however, it appears that the virus could remain viable under these conditions for at least one or two days.

BILE SALTS FOR CHOLECYSTECTOMIZED PATIENTS

To the Editor:—A patient, aged 44, weighing 193 pounds (87.5 Kg.), had a cholecystectomy because of mild inflammation four years ago. He now feels best on a low fat, high protein diet and 10 grains (0.65 Gm.) of "desicol" with each meal. Without evidence of liver damage should he continue taking the bile salts indefinitely? What is the optimum dose? Can bile taken with his meals cause gastric or bowel irritation or other untoward effects?

M.D., California.

Answer.—Information is not offered here with regard to preoperative symptoms or the consequences which attend deviations from the patient's low fat routine and therapy with bile salts. Persistent symptoms four years after cholecystectomy are unusual. If they do occur, other possible extrabiliary causes (liver or pancreatic disease and functional digestive disturbances) should be suspected.

If there is actual evidence of spasm of Oddi's sphincter or of intermittent interference with the flow of bile, the use of bile salts is justifiable. Otherwise reason for the continued use of bile salts in this case is not perceptible, since normal production of bile salts by the liver is resumed within two or three weeks, even after obstruction of the common bile duct has been present. In the dose mentioned bile salts would not be harmful, even if latent disease of the liver were present. Gastric or bowel irritation is infrequently produced by the preparation mentioned. Dosage is entirely adequate.

HERPES SIMPLEX

To the Editor:—A patient suffers from recurrent herpes simplex which began with an injection of typhoid antigen three years after having typhoid. She now gets three or four attacks of herpes every summer. I have tried moccasin venom without results. Are there any suggestions?

M.D., Massachusetts.

Answer.—There is no one therapy which can be expected to ield results with certainty. However, there are several methods ich give results in a high percentage of cases.

. Smallpox vaccinations have been used a great deal. The eory is that some sort of cross relation exists between the two viruses. This is doubtful. Nevertheless, on clinical grounds many consider that repeated vaccinations (irrespective of whether there are takes or not), given every two to three weeks up to five or six such treatments, will tend to abort the recurrence of herpes or to ameliorate them when they do happen (Foster, P. D., and Abshier, A. B.: *Arch. Dermat. & Syph.* **36**:294, 1937). Keddie, Rees and Epstein (*J. A. M. A.* **117**:1327, 1941) found that one smallpox vaccination was completely ineffective in preventing herpetic attacks after fever therapy.

2. Injection with the virus of herpes simplex has been used. This has been done in various ways. S. B. Frank (*J. Invest. Dermat.* **1**:267, 1938) used a formaldehyde-treated, herpes-infected brain emulsion and believed that he got good results with this product.

3. Autoserum therapy has been used. Blood is taken just as a new crop of vesicles appear. The serum is separated by centrifugation and stored in sterile conditions. Twice a week 0.2 cc. of the autoserum is injected intradermally, the same site being used for four successive injections. The treatment is carried out for ten weeks with three different batches of serum (Thomas, C. C.: *Arch. Dermat. & Syph.* **43**:817, 1941).

4. Roentgen therapy has been used both to abort attacks and as a prophylactic against subsequent attacks. P. Robert (*Dermatologica* **82**:108, 1940; abstracted, Wise, F., and Sulzberger, M. B.: Yearbook of Dermatology and Syphilology, Chicago, he Year Book Publishers, Inc., 1941, p. 430) used two applitions of 155 r with an interval of two weeks between them. lost American dermatologists believe in smaller dosages than those advocated here. A dose of 75 r can be given prophylactically at such times as the patient is going to do or to encounter the things which usually bring on the attacks of herpes, e. g., basking in the sun or the onset of a cold. Many believe that this will abort or suppress the anticipated attack.

CHANGES IN SEDIMENTATION RATE

To the Editor:—Is sedimentation rate reading on citrated blood that has been left standing for twenty-four hours or longer reliable? How does it compare with the reading of freshly citrated blood?

Jack Heyman, M.D., Newark, N. J.

Answer.—Blood that is allowed to stand in citrate or in oxalate solutions, used as anticoagulants, shows a progressive decrease in the erythrocyte sedimentation rate. Usually no change after two to four hours of standing at room temperature occurs. Thereafter there is a progressive decrease in the sedimentation rate, becoming maximum at about twenty-four hours of standing at room temperature. An otherwise rapid sedimentation rate will decrease to normal in most instances. Blood kept in the ice box will remain the same sedimentation rate longer than that kept in the room. Observations of the erythrocyte sedimentation rate should be made within two to four hours of the time the blood sample is obtained.

FROHLICH'S SYNDROME

To the Editor:—I recently saw a boy 9 years of age in my office with large breasts and retracted nipples but no discharge; a tendency to cryptorchidism; central distribution of adiposity, and undeveloped penis. Please recommend treatment for this type of hormonal disturbance.

William B. Roberts, M.D., Concord, Calif.

Answer.—In the absence of evidence of intracranial lesions it would seem that this boy merely simulates a case of Fröhlich's syndrome. These patients usually develop quite normally with puberty, and with loss of weight all signs of glandular dysfunction disappear. However, some physicians prefer to give glandular therapy in order to eliminate any possible psychologic trauma which may develop due to the superficial abnormalities in body appearance. Administration of chorionic gonadotropin, 400 international units twice weekly, for several weeks usually produces a noticeable maturation of the genitals and a descent of the testes, if there are no anatomic barriers. This is usually sufficient to reassure the patient and his parents that there are no sexual abnormalities. It is also advisable to restrict the patient's diet in order to reduce the adipose condition.

BLOOD PRESSURE AND ALTITUDE

To the Editor:—What effect has a change of altitude from sea level to 5,000 feet, or vice versa, on blood pressure?

M.D., Colorado.

Answer.—Such change in altitude should have little if any effect on arterial tension, assuming that the change is not an abrupt ascent and is not associated with anxiety. If the question applies to land altitude, changes in blood pressure can be ignored; if it involves aviation, the element of anxiety must be considered. This latter factor may cause considerable change in arterial tension with great individual variation.

BLACK TONGUE

To the Editor:—A white woman, aged 35, has been suffering severe, knife-like pains in the chest for over one month. Attacks occur one to two times daily; pain is usually in the right side, over the fifth or sixth rib anteriorly. Occasionally pain radiates to the precordial region, to the right shoulder, or to both shoulders. Emesis and nausea are absent. Dyspnea and hoarseness and sometimes complete aphonia accompany the attacks, which last six or seven hours, despite glyceryl trinitrate, atropine, meperidine hydrochloride ("demerol hydrochloride" N. N. R.) in 100 mg. doses repeated after two hours and methadon (6-dimethylamino-4,4 diphenyl-3-heptanone) in one or two doses of 10 mg. After the patient falls asleep the respirations are still labored and often irregular. During attacks swallowing is often difficult, and even water, when sipped, causes coughing and choking. The picture is frightening. I have spent hours with the patient during attacks, and it has required great will power not to give narcotics more frequently than at two hour intervals.

Moderate edema of both ankles occurs. Temperature is usually normal, but often ranges from 100 to 101 F. The tongue has a thick black coating. Eyes show no changes due to vitamin deficiency. There is a moderate cracking or fissuring at each corner of mouth.

On account of hoarseness, a laryngologist examined the patient and found "moderate edema and redness of vocal cords." Inhalations were taken regularly without effect. Antispasmodic drugs in large doses have been taken daily for three weeks, and phenobarbital, 3 to 4 grains (0.19 to 0.26 Gm.) daily, with no effect.

Two internists who examined the patient diagnosed the condition as "functional" (despite the following paragraph) and prescribed sedatives and antispasmodic drugs.

I prescribed daily doses of 300 mg. thiamine chloride and 300 mg. of nicotinamide orally plus daily injections of vitamin B complex (100 mg. thiamine and 100 mg. nicotinamide plus 100 mg. ascorbic acid), and 15 units of refined liver extract. After the injections were given for one week, the patient's tongue was normal. I then stopped all vitamins: one week later the tongue was again covered with a thick grayish black coating. I renewed administration of the preceding medicaments and the tongue is again normal, but there was no effect on the attacks of pain.

What is the suggested diagnosis?

M.D., New York.

Answer.—The black tongue is suggestive of an entity called "hairy black tongue." This is characterized by decided hypertrophy of the filiform papillae and pigmentation believed to be due to a superficial infection with any of a number of pigment-forming fungi or bacteria (Kennedy, C. B., and Howles, J. K.: *Arch. Dermat. & Syph.* **42**:566, 1940). This condition is considered to be of no importance aside from its psychologic effect. It has nothing to do with "black tongue" in dogs, a condition which has, as its human counterpart, atrophy of tongue papillae without pigmentation. The lingual symptoms probably can be dismissed as not being connected with the rest of the picture. Note that the thoracic symptoms did not improve when the tongue did.

It would seem that the patient is not suffering from vitamin deficiency. There are nonvitamin causes for cheilosis. No importance is attached to the slight pigmentation of the hands. Although the pain in the right side of the chest is not characteristic of liver or gallbladder disease, the radiation of pain to both shoulders brings up that possibility.

Considered but deemed unlikely are the following: an intermittent right diaphragmatic herniation, pleurodynia and angina pectoris.

Hysteria could explain the chief clinical features, namely, the aphonia, the difficulty in swallowing, the dyspnea on the basis of a hyperventilation tetany and, possibly, the pain. The presence of a slight temperature weakens this diagnosis. Further study should include the following: serum protein and albumin-globulin ratio (cf. edema), fluoroscopy of the chest during an attack, Graham-Cole test, barium swallow during an attack and rectal temperatures.

"TAMPAX"

To the Editor:—Can "tampax" be inserted in the vagina of virgins for menstrual protection without danger of injuring the hymen to the extent of destroying this evidence of virginity?

John H. Murphy, M.D., Geneseo, Ill.

Answer.—Yes, if the smallest size "tampax" is used.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 136, No. 14 CHICAGO, ILLINOIS APRIL 3, 1948

COPYRIGHT, 1948, BY AMERICAN MEDICAL ASSOCIATION

DRUG THERAPY IN DEGENERATIVE DISEASE

ANDREW C. IVY, M.D.

Vice President of The University of Illinois and Head
of the Department of Clinical Science
Chicago

The term degeneration is used physiologically to refer to a process characterized by an impairment or perversion of the function of a tissue. It should be noted that with this definition cancer would be classified as a degeneration, and the expression "carcinomatous degeneration" of a tissue is not infrequently used.

Morphologically the degenerations form a heterogeneous group of changes in which abnormal materials collect in or between cells, with nonfatal or fatal consequences. The degenerations are believed to be due either to the metabolic disorder of cells, which arise from latent weaknesses in the constitution, or from external causative factors or a combination of both. The morphologic changes consist of "cloudy swelling," or albuminous degeneration, fatty degeneration, glycogen infiltration, amyloid degeneration, hyaline degeneration which involves collagenous connective tissue in arteriosclerosis, mucoid degeneration and the excessive deposit of urates, pigments, calcium and other substances and of the necrosis of cells.

The expression "degenerative diseases," however, refers particularly to the slowly progressive circulatory and metabolic disorders usually associated with aging. In contrast to the infectious diseases of youth, the causation of degenerative diseases appears to be chiefly endogenous, cumulative and multiple, the onset insidious and asymptomatic and the course chronic, progressive and nonimmunizing.[1]

It is rational to distinguish between the "degenerative diseases" and the processes, retrogressive or degenerative, which occur as a natural concomitant of life. Or, in other words, it is rational to distinguish between pathologic aging and physiologic aging.[2] In pathologic aging the degenerations are accelerated by some external or internal environmental factor or factors which, if known, would be subject to control. On the other hand, in physiologic aging, or senescence, the degenerations are viewed as an involution or as a retrogressive process which is as natural as growth. This view would teach that, in the process of living, injurious chemical and physical conditions accumulate because of the imperfect adaptation of the body to its environment, and, as a result, the usual degenerative changes associated with aging occur, including the cancerous processes.

The degenerative diseases, then, are the noninfectious and nonparasitic diseases which kill and maim aging persons prematurely and for which it is biologically rational to hope that the causes, the prevention and better management may be found.

SOME OF THE DEGENERATIVE DISEASES

Some of the more important or better known degenerative diseases will be listed, for purposes of orientation, relative to treatment with drugs. Arteriosclerosis, chronic myocarditis, chronic nephritis, atrophic gastroenteritis, pernicious anemia, diabetes mellitus, cirrhosis of the liver and the pancreas, diverticulosis of the colon, hemorrhoids, senile paralysis agitans, senile psychosis, multiple sclerosis and combined degeneration of the spinal cord, hypertrophy of the prostate gland, dental caries (perhaps), hypertrophic osteoarthritis, postmenopausal or senile osteoporosis, gout, otosclerosis and senile deafness and blindness constitute some of the degenerative diseases. Some would classify cancer and goiter as degenerative diseases. The decline of function of the ovaries and the testes with age represents involution rather than degenerative disease.

DRUGS USED IN THE MANAGEMENT OF DEGENERATIVE DISEASE

The drugs which are used to substitute for specific deficiencies created by the degeneration of organs are relatively few in number and involve, with two exceptions, endocrine products. The specific drugs used to substitute for functions lost as a result of degenerative disease or the natural involution of an organ are: insulin for diabetes mellitus, extract of adrenal cortex for adrenal cortical insufficiency or Addison's disease, thyroid for myxedema and diseases fostered by hypometabolism, extract of liver for pernicious anemia which results from a type of atrophic gastroenteritis, pancreatin for the deficiency of pancreatic juice due to pancreatic fibrosis, estrogens for menopausal symptoms and associated disturbances and cancer of the prostate gland and testosterone to improve the retention of protein and for the treatment of cancer of the breast. All the other drugs used in the management of degenerative diseases act primarily by ameliorat-

---

Read at the Midyear Meeting of the American Pharmaceutical Manufacturers' Association (in connection with the Scientific Award to the American Medical Association), New York, Dec. 16, 1947.

[1] Stieglitz, E. J.: Geriatric Medicine, Philadelphia, W. B. Saunders Company, 1943.

[2] Rolleston, H.: Medical Aspects of Old Age; New York, The Macmillan Company, 1932.

ing the symptoms of disease rather than by substituting for a deficiency.

Vasodilators, such as theobromine, theophylline ethylenediamine, the nitrites, erythrityl tetranitrate, bismuth subnitrate, nicotinic acid, papaverine hydrochloride and alcohol, are used to counteract vasospasm or dilate relatively inelastic arterioles.

Sedatives, such as the barbiturates, chloral hy-ate and the bromides, are used in hypertension d coronary disease to promote relaxation and decrease the load on the heart. Drugs which support the heart, such as digitalis, strophanthin and quinidine sulfate, are frequently required. Expectorants, such as potassium iodide and ammonium chloride, are useful in cardiac asthma and emphysema. Diuretics, the purine derivatives, the organic mercurials and ammonium chloride are of value in cardiac edema and some cases of cirrhosis of the liver.

Analgesics, such as morphine for the pain of coronary occlusion and the salicylates for rheumatic pains, prevent much suffering.

Antispasmodics, such as belladonna and stramonium, find a place in the management of paralysis agitans. Colchicine promotes the excretion of uric acid in gout and probably acts on the cause as well as the symptoms.

Antibiotics and sulfonamide drugs will probably retard the development of certain degenerative diseases by shortening the duration and decreasing the severity of infectious diseases.

Though there have been *striking achievements in* the treatment of degenerative disease, the outstanding achievement of medical science has been the control of infectious diseases. This achievement is dramatically demonstrated by mortality and longevity statistics. In 1900 the life expectancy was 49 years; in 1945 it was 66 years. Thirty per cent of persons who now have attained the age of 65 owe their survival to advances in medicine and public health administration made since they were born.[3] In addition to saving more and more lives, the application of medical discoveries, since 1900, has added four years to the life expectancy of those who are now 40 years of age, and one and a half years to the life expectancy of those who are now 65 years of age. (In 1945 the life expectancy of men at 65 was twelve and four-tenths years and of women fourteen and a quarter years.) Medical progress has not only saved more lives but it has added a few years to the average life. However, the added years are probably derived more from the control of infectious disease than from the control of degenerative disease.

While many have been reaping the harvest of the achievements of medical science, public health administration and pharmaceutic chemistry, a change has been occurring in the structure of the population and in the need for emphasis on a new area of medical research. As a result of a decrease in birth rate (12.1 in 1900 and 8.3 in 1940), a decrease in immigration and an increase in persons surviving into middle and old age, the population has been shifting from youth to middle age. Almost 29 per cent of the population in this country are over 45 years of age; by 1960, 33 per cent will be over 45 years of age; 7.7 per cent, or almost 11,000,000 persons, in this country are now over 65 years of age, and by 1960, 9 per cent of the population will be over 65 years of age. This shift in population will probably occur more rapidly than is now predictable, because the mortality from pneumonia, tuberculosis and other infectious diseases is rapidly decreasing. This means that the emphasis in medical research will have to be changed and the public health program will have to be broadened.

I believe that this is a turning point in the history of medical research. The emphasis in the past, and properly so, has been on the control of the acute diseases, which, except for the virus diseases, have largely been brought under control. In the future, the emphasis must be on the chronic and degenerative diseases. The importance and urgency of this situation may be illustrated by presenting some evidence. For example, chronic cardiac disease, *cancerous arteriosclerosis, cerebral hemorrhage,* chronic nephritis and diabetes mellitus now rank among the first ten causes of death and account for 60 per cent of deaths in the United States. More dramatically, one half of the babies born in 1940 will die of degenerative disease of the circulatory system and kidneys. Moreover, middle and old age are characterized by a high incidence of disabling disease. Seventy per cent of persons now permanently disabled are 45 years or more of age. Thirty per cent of the patients admitted to mental hospitals are 60 years of age or more, most of which patients have senile psychosis due to cerebral arteriosclerosis. Six million and eight hundred thousand persons have rheumatism, and of these 1,500,000 have the degenerative form of arthritis, namely, hypertrophic osteoarthritis. One hundred and fifty thousand persons are now invalided by their rheumatic condition.

It seems clear that unless medical research discovers a way to decrease the disabilities incident to chronic illness and incapacitation of middle and old age, economy and medical practice, as it is known today, will undergo much change. The total number of sick persons will obviously increase, because of the long periods of disability. This will increase the need for physicians and nurses and for beds for hospital and custodial care. The total cost of medical care will be increased beyond that anticipated by an increase in population alone. These rather obvious facts show that since the turn of the century medical advances have been creating an obligation for future generations to care for proportionately many more old and disabled persons than are now being cared for. The only way this obligation can be lightened is by the expenditure of more money and time on research on *degenerative disease.*

Therefore, it seems clear that "to prolong useful life" is the next important contribution to be made by medicine and pharmaceutic chemistry. One of the first needs is to dispel the fatalism which surrounds the subject of degenerative disease, a fatalism which is based on a failure to learn and recognize the implications of knowledge now available. Within the last twenty years unequivocal progress has been made in the treatment of cancer, and there are reasons to believe that arterial disease may be brought under control. For instance, let me illustrate by using arteriosclerosis as an example, since it is the major degenerative disease responsible for the failure of the function of such vital organs as the heart, kidneys and brain. The following facts establish the view that something can be done about arteriosclerosis. *(a)* All persons over 80 years of age do not have decided arteriosclerosis when they die. Groddeck,[4] in autopsies of 283 persons over 80 years of age, observed that 34 per cent had only slight sclerosis of the coronaries and 3 per cent had only minimal sclerosis of the aorta. *(b)* Arteriosclerosis does not appear with equal frequency in the sexes, which is particularly true of coronary disease. *(c)* Coronary disease is more common in white persons than in Negroes.[5] *(d)* Arteriosclerosis is not uniformly distributed throughout the vascular system. *(e)* It occurs in association with renal disease and infections in children; hence it is not solely correlated with age. *(f)* It can be produced experimentally in animals by many different procedures, and its development may be modified by various drugs and procedures.[6] Numerous pathologists likewise express the belief that arteriosclerosis, such as effects the intima of arteries, is a disease and not the direct result of involution associated with aging.[7] The incidence of the disease is low in Iceland,[8] which is attributed to the high intake of iodine in food. Because of the relative complexity of the problem of the degenerative diseases and the time factor involved, the solution of this problem will be more difficult and expensive than the solution of problems presented by infectious and acute diseases.

---

[3] Dublin, L. I.: Human Biol. 13: 439, 1941; 14: 352, 1942.

SUMMARY

Progress has been made in the drug therapy of degenerative diseases, but it has been small in relation to the importance of the subject. The remarkable success which has attended the discovery of the cause, prevention and treatment of infectious and acute diseases has dramatically increased the need for the solution of the problem of the treatment of degenerative diseases. As a result of saving more lives in youth, the population has shifted from youth to middle and old age. This is a turning point in the history of medical research; the emphasis from now on will be on chronic illness and degenerative diseases. Unless something is done to prevent it, one half of the babies born in 1940 will die of degenerative disease of the circulatory system and kidneys. The achievements of the past two or three generations have rendered it necessary for future generations to care for many more old and disabled persons than are now being cared for. The next important contribution to be made by medicine and pharmaceutic chemistry is to prolong the period of useful life. There is plenty of evidence to show that cancer and degenerative diseases, such as arteriosclerosis, can be brought under control. However, the problem is more complex and its solution will require more man-hours and money than will that of the problem of infectious diseases. A society and profession which has promoted research to save human life has the responsibility of keeping that life in health.

---

4. Groddeck, H.: Ztschr. f. Altersforsch. 1: 238, 1938-1939.
5. Perry, T. A., and Langspan, S. M.: Am. Heart J. 19: 424, 1940.
6. Huepfer, W. C.: Biol. Symposia 11: 1, 1945. Page, I. H.: Biol. Symposia. 11: 43, 1945.
7. Winternitz, M. C.; Thomas, R. M., and Le Compte, P. M.: The Biology of Arteriosclerosis, Springfield, Ill., Charles C. Thomas, Publisher, 1938.
8. Dungal, N. P.: Lancet 1: 1354, 1936.

CHRONIC BRUCELLOSIS

Conclusions on Treatment After Ten Years

JOSEPH FRANKLIN GRIGGS, M. D.
Claremont, Calif.

Only within recent years has chronic brucellosis (undulant fever) been recognized[1] as an important cause of many common complaints of a chronic or recurrent nature. The most frequent symptoms[2] are fatigability, myalgia, arthralgia, neuralgia, headaches, light-headedness, intractable eye fatigue, sweating, thermolability, myriad digestive dysfunctions, nasal catarrh or chronic sore throat or cough, tachycardia, nervous irritability, depression, insomnia or mental torpor and various disturbances of the reproductive system, especially in the female. The commonest physical findings,[1p] when there are any, are low grade fever, slightly enlarged liver, increased redness of mucous membranes, tenderness in the right lower quadrant of the abdomen and a suggestive blood picture.[1i]

The typical history is one of long duration, varied diagnoses, unsuccessful treatment, recurrent course, aggravation of debility following pregnancy, operation or "influenza" and, finally, a conclusion that the patient must be "neurotic" or the complaints "functional" or constitutional. The well known acute phase of classic brucellosis is often not discoverable in the history at all.

It may seem incredible that such a disease could have been in the population for many generations and yet have escaped detection and recognition as a common clinical entity. The reason is probably at least fourfold: 1. The laboratory procedures which usually detect the acute form of brucellosis more often give negative results in cases of chronic brucellosis.[3] 2. The manifestations of chronic brucellosis are so varied that the disease is easily misdiagnosed as one of many other conditions which it may simulate rather well.[1j,k] 3. Organ diagnoses (cholecystitis, colitis, appendicitis, endometritis, sinusitis, arthritis) have too easily satisfied diagnosticians and surgeons. Brucella is capable of affecting any and every tissue of the body[1k]; and, while it is true that foci of uncontrolled brucellar infection or secondary infection often monopolize the clinical picture, the organism is rarely confined to any one organ. Often it is only after the necessary extirpation of the focus that it becomes clear that the patient is still sick with a generalized low grade infection. 4. Man and Brucella have probably been living together since the early herdsman stage of civilization. There has been a close adaptation between the two, so that the human organism reacts but little to this invader, and the latter seldom destroys its host. The task of detecting or excluding brucellosis has presented a serious challenge to diagnostic research. This problem has been considered in previous publications.[1n,p] The development of an adequate therapy for brucellosis is a difficulty of equal magnitude.

EXPERIENCE WITH TREATMENT

The purpose of this paper is to summarize my experience with treatment in 300 cases of chronic brucellosis, chiefly in California, since 1937. The

---

Owing to lack of space, the footnotes have been omitted from THE JOURNAL but will appear in the author's reprints.

diagnosis in these cases has been reported elsewhere.[1p] I began treating with a commercial heat-killed vaccine (Brucella abortus and Brucella suis) and "brucellin" (a preparation from pooled cultures of three species of Brucella),[4] in doses recommended in the folders which accompany the products. The objective seemed to be to give the patient a fairly severe local and general reaction, to jolt his resistive processes to a high point. Sometimes the results were gratifying and successful. More often the beneficial results were short lived or quite inconclusive. A common statement by the patient was: "I can't tell whether it is the vaccine that makes me feel worse or better, or whether it is just the natural ups and downs of my disease." In at least 25 per cent of patients the large doses of commercial vaccine caused severe exacerbations of symptoms without being followed by commensurate improvement. The muscles, skin and subcutaneous tissues of these patients became more and more intolerant of brucella vaccine. Large nodular indurations formed at the sites of injection and lasted many weeks. Some of these broke down into sterile abscesses a few months later. Others showed delayed healing of the needle wounds in the skin because of slight necrosis along the path of the needle tract. These hypersensitive patients became more sensitized with the large doses of commercial vaccine, and they could not, and would not, withstand such treatment. In spite of the high opsonin and agglutinin levels which developed, they felt worse, or no better, even after treatment was discontinued.

Summary of Early Experience.—In summary, then, I found that the usually recommended doses of commercial heat-killed brucella vaccine were not advisable as a general rule, for the following reasons:

1. *(a)* Only 60 per cent of patients with chronic brucellosis so treated were benefited at all by the treatment; *(b)* many of these relapsed later; *(c)* most of them objected to the discomfort and disability of this protein shock therapy.

2. Over 25 per cent of the patients with chronic brucellosis in California manifested hypersensitivity to brucella vaccine with this method. In practical terms, hypersensitivity means local tissue intolerance to vaccine, generalized exacerbation of symptoms and a short-lived increase in agglutinins and opsonins, which is deceptive.

From this study it appeared that agglutinins and opsonins may result from hypersensitivity or sensitization as well as from immunity. If the vaccine stimulated the production of immune bodies, the good effect was counteracted by the development of hypersensitivity at the same time. This offers an understanding of patients who are not well in spite of attaining laboratory evidence of immunologic response to infection. Although the blood may show agglutinins, opsonins and complement-fixing bodies, this immunity does not necessarily extend to the preferred habitat of the brucella, which is intracellular.[5] The invader, therefore, is often well protected from blood-borne antibodies and antibiotics.

Effect of Smaller Doses of Vaccine.—The next logical step was to decrease the size of doses of the vaccine in order to avoid excessive reactions. Two methods were used. The total quantity of material injected was kept very small, 0.01 to 0.40 cc., and the vaccine was diluted with sterile isotonic solution of sodium chloride to make weaker concentrations. Each local reaction was carefully noted as to size, redness, tenderness, hardness and duration. The intervals between injections were adjusted experimentally. After an interval of five days there often appeared an increased sensitivity to subsequent injections. It was found that the concentration of the vaccine was more important than the mass volume of the injection.

The results of diluting the vaccine to a few hundred or a few thousand killed bacteria per dose were distinctly better than the results of shock dose therapy. Patients felt less abused during treatment and were less inclined to give up vaccine therapy. A larger number (75 to 80 per cent) were significantly improved. Undulations of the disease were less frequent and severe. A larger number of patients received dramatic relief from discomfort and disability. Sterile abscesses and cutaneous necrosis became unusual, or even rare. Opsonins and agglutinins appeared more gradually. However, there were still 20 per cent of patients who could not tolerate these injections of killed bacteria in any dose and a large percentage in whom the doses could not be increased without increasing sensitivity. There were also a number of patients who still felt sick in spite of good local tissue tolerance to the vaccine and good opsonic response. Theoretically, they should have been getting better, but they had reached a plateau after their initial improvement. They remained better, not very sick, but making no progress, and certainly far from cured.

Following a suggestion of Harris,[1k] I attempted desensitization with intravenous injections of vaccine in doses of a few killed bacteria, the amount being increased gradually to several thousand per dose. With only 1 or 2 patients was this successful. The hypersensitive patients continued to become still more sensitized. The doses had to be decreased instead of increased in order to avoid successively severer general reactions and persisting exacerbations. I was unable to confirm Harris' impression that after a few intravenous injections the subcutaneous route could be resumed. However, the intravenous route became valuable in a small, important group of cases after I learned what doses to use.

Effect of Nonspecific Measures.—A number of physicians have discontinued brucella vaccine therapy entirely and have fallen back on general tonic measures. From my early experience, outlined in the preceding section, it is easy to see how one could become discouraged by the bizarre results of specific vaccine therapy of chronic brucellosis. Penicillin is useless in treatment of this disease.[1r] Sulfonamide compounds have also been disappointing [6] with few significant exceptions.[7] Streptomycin does not offer much hope when given in ordinary doses.[8] Streptomycin and sulfonamide compounds,[7c] like many other agents, may appear to cause remission in the acute form of undulant fever in which sudden remission usually occurs spontaneously. In cases of the chronic form of the disease the failure of these blood-borne drugs is probably due to the intracellular existence of brucellas in the tissues.[5]

In order to test the effect of general tonic measures, I reviewed the literature and tried a number of recommended measures, without vaccine therapy. Crude liver extract; cacodylates (dimethyl arsenate); strychnine; vitamins; thyroid and other endocrine substances, as possibly indicated; salicylates, given intravenously; nitromersol N.F. ("metaphen"); congo red; iodides; colchicine, and numerous symptomatic remedies were used. As a group, patients with brucellosis did not do well on general tonic measures. Such patients feel that they need rest, but no amount of rest proves sufficient to overcome the disease in adults. The same is true of physical therapy. Almost every patient in my series had tried large doses of preparations of the vitamin B complex before coming to me. I concluded that general tonic measures are usually a discouraging waste of time, money and effort except for short periods of preparation for vaccine therapy. While waiting for the healing of necrotic lesions resulting from cutaneous tests or for the absorption of nodular reactions to vaccine, I give crude liver extract and adrenal cortex extract intramuscularly alternating with intravenous administration of vitamin B complex and a strychnine-cacodylate preparation. Only 2 patients of the 300 have improved so much on this regimen that they do not appear to need vaccine. However, both these patients have relapses when treatment is stopped for a long period.

Extreme Degrees of Hypersensitivity.—My next effort was to answer the question: How much must brucella vaccine be diluted before it can be tolerated by the most hypersensitive patients? Controlled experiments proved repeatedly that even 1 bacterium was too much for most of them! The vaccine is a solution of the specific substances, presumably proteins, of the brucella bacterium, an encapsulated coccoid bacillus, 2 to 3 microns long and about 2 microns wide. By further diluting the vaccine with saline solution and injecting it into patients, along with plain saline solution controls, I found that the sensitized human organism reacts to infinitesimal fractions of the specific substances of this microscopic pathogen. The soreness of the muscle, the redness of the skin and the induration of the tissues at the site of injection of the vaccine offer both objective and subjective proof that the dilution of the vaccine contains something not present in the diluent saline solution alone. When given intravenously, these dilutions of vaccine will produce in sensitized patients a mild to pronounced exacerbation of generalized aching, chills and fever, appearing in four to six hours and subsiding in another four to forty-eight hours.

To date, my colleagues and I have been unable to find a concentration of brucella vaccine so dilute that it fails to produce an objective reaction in the most sensitive patients with chronic brucellosis. Attempts to find such dilutions have taken us beyond the point where large protein molecules could be expected to be present, e.g., doses smaller than 1 bacterium $\times 10^{-14}$. Some specific brucella substances are polysaccharides, much smaller molecules than proteins.[9] These might explain the activity of the slightly weaker dilutions. Practically, it seems almost impossible to dilute these specific substances out of existence. Adsorption and fragmentation of specific molecules have been suggested in partial explanation of this apparent conflict with theory. By drastic cleaning technics, all known errors of adsorption have been eliminated. We have been encouraged to persist in these observations because of the similarity of brucellosis to tuberculosis and the well known allergenic properties of tuberculin in extreme dilution. Theoretic implications of these observations are being subjected to further study.

The significant clinical observation is that certain patients with extreme brucellar allergy are most difficult to desensitize unless doses of molecular size are used to initiate treatment.

Advantages of Oxidized Brucella Vaccine.—The work of Calder [1h] and Hagebusch and Frei [11] led to the use of a vaccine which is modified or attenuated by oxidation with nitrous acid in order to avoid severe reactions. The oxidized brucella vaccine was developed by Foshay, of the University of Cincinnati School of Medicine. It is prepared in a manner similar to his modification [10] of tularemia vaccine, which is well tolerated and provides protection to bacteriologists working with Pasteurella tularensis. Oxidized Br. abortus vaccine has never caused a sterile abscess or cutaneous necrosis. I agree with Calder that this vaccine is superior to any other known preparation for treatment of chronic brucellosis. However, it still causes severe local and general reactions in hypersensitive patients when used in doses of appreciable numbers of killed bacteria. Sensitivity likewise increases if the doses are increased too rapidly. During the war, supplies of oxidized vaccine were short. Commercial vaccine was often substituted, in identical doses, and it was obviously less well tolerated, apparently because it was more allergenic than Foshay's oxidized vaccine.

PRESENT THERAPY

Principles.—By avoiding general reactions entirely and striving to find the minimum dose which will produce a local reaction of not more than twenty-four hours' duration, a method of treatment has been evolved which enables me to treat individually every patient with chronic brucellosis with greater satisfaction than by any other therapy in my experience. The principles of the present method are as follows:

1. One should never begin vaccine therapy until all tissue reaction to previously administered vaccine or cutaneous tests has completely subsided. Initial intradermal tests should be made with very dilute materials, such as "brucellergen" (a suspensoid of nucleo proteins of brucella cells) diluted to 1:120,000 or doses of vaccine representing no more than 1,000,000 killed bacteria [11] in 0.05 cc. Sensitivity is always increased by necrotic reactions and by indurations due to unabsorbed vaccine. Desensitization is practically impossible as long as there is a breakdown of tissues anywhere in the body as a result of living brucellas or specific brucellar derivatives (allergens).
2. Treatment should begin with vaccine diluted (and preferably modified) so that the initial doses will probably be too small to produce any general reaction and will cause only a minimal local reaction, if any. For hypersensitive patients this may mean a dose of much less than 1 killed bacterium, preferably about 1 molecule of specific antigen.
3. Injections should be made into the muscles of the thigh and deltoid region in order to avoid the variable slower rates of absorption by the subcutaneous route.

4. Another injection of vaccine should never be given while there is any induration, redness, swelling or tenderness from the previous dose. The sites should be inspected and palpated; one should not accept the patient's word that the previous reaction has subsided.

5. Injections should be given every two or three days, as reactions permit. The intervals between doses should not be more than five days by whatever route the injection is given.

6. When there is only a minimal local reaction, subsequent doses may be doubled each time until larger reactions begin to appear. Then the doses should be increased by only 0.02 to 0.10 cc. The maximum dose reached in any one concentration or dilution of vaccine is 0.45 cc. After this dose is given, the next dose is 0.05 or 0.10 cc. of a dilution ten times as concentrated.

7. If reactions become progressively severer in spite of little or no increase in doses of vaccine, the injections should be stopped for five days or more and the series begun again with a much weaker dilution of vaccine than has ever before been used for the patient. The doses are increased more gradually. A different route, such as the intradermal [12] or the intravenous one,[1k] will be necessary for some patients.

8. Vaccine therapy may be discontinued when the patient is apparently recovered symptomatically and has a high phagocytic index which has been attained gradually without sensitization. In the case of young, vigorous patients this will require several weeks. For the majority of all patients it requires more than one year. The size of the final dose attained may be only a few killed bacteria when only desensitization is required, or it may be several billion killed bacteria in an undenatured vaccine when sensitivity is low.

9. If a patient is not recovered clinically after the gradual building up to large doses and a high phagocytic index, the following measures are indicated, in the order designated:

(a) Desensitize again, even though the patient's tissues do not appear to be hypersensitive.

(b) Search again for foci of infection, usually mixed, and give appropriate treatment with surgical measures or short wave diathermy, roentgen irradiation and medication, along with the vaccine. Investigate again the diagnosis as a whole.

(c) Repeat the desensitizing-immunizing series of injections with a vaccine of different strains of brucella, preferably from the geographic area where the patient contracted the disease.

(d) Try larger doses and greater concentrations of vaccine.

(e) Discontinue vaccine for an observation period of several months.

(f) Repeat the series, using a different route, either intradermal or intravenous, and increase the doses more gradually.

Additional Points of Treatment.—Dilutions of vaccine must be made with extreme accuracy and care to prevent contamination. We use 0.2 per cent phenol in the diluent. Dilutions should be kept fresh and cold and should be cultured periodically. The concentration of vaccine in the dilutions is seriously disturbed if a needle which has entered a strong dilution is used to prepare or administer weaker dilutions. Syringes are thoroughly cleansed after each use with detergents, soaked overnight in a concentrated solution of sulfuric acid and potassium bichromate and thoroughly rinsed before sterilizing. Needles are cleaned with detergents and soaked in 1 per cent sodium hydroxide-alcohol solution for one-half hour after each use, then rinsed well and sterilized. Sterilization is done by autoclaving or with dry heat, not by boiling in a common water bath. The supply of sterile isotonic solution of sodium chloride used for making dilutions and for cutaneous test controls must be rigorously protected from contamination with any needle, syringe, bottle or rubber stopper which might have even the minutest amount of brucella vaccine adhering to it. Failure to observe these precautions will result in inaccurate doses and erroneous conclusions.

Patients should be warned that they will continue to experience some of the natural undulations of their disease even while they are under treatment. They should be ordered to resume normal activity to the limit of their will power, short of exhaustion. Sedatives and nearly all other medications are to be discontinued within a few days or weeks after vaccine therapy is started. Most patients on special diets for "ulcer" and "colitis" can usually resume normal, adequate eating habits. A very few patients, until they are desensitized, may need to avoid milk and milk products, beef and pork which contain brucella substances to which they are allergic. Vacations from vaccine should be firmly discouraged because of the possible increase in sensitivity after five days. Intelligent patients can be taught in a few weeks to administer the vaccine to themselves, checking with the physician once or twice a month. Gratifying improvement is usually noticed within two months of beginning treatment.

SUMMARY AND CONCLUSIONS

The difficulties in treating chronic brucellosis are examined.

Ten years' experience in the treatment of 300 patients by various schemes of specific vaccine therapy is reviewed. The usual methods of using brucella vaccine have been rather disappointing. Nevertheless, vaccine administered by an improved method appears to offer better results than any other management.

The chief obstacle to vaccine therapy was found to be the patient's sensitization to brucella substances. This hypersensitivity reached an extreme degree in about 25 per cent of cases in California.

A safe and effective method of treating chronic brucellosis with oxidized brucella vaccine has been developed and is reported in this paper. The principles involve desensitization with ultraminute fractions of oxidized brucellas before or after using larger doses.

Advantages of this therapy are that *(a)* it is applicable to nearly all cases of chronic brucellosis; *(b)* it is usually accompanied with symptomatic improvement instead of unpleasant reactions; *(c)* it is economical financially; and *(d)* it produces improvement, remissions or recoveries in 85 to 90 per cent of all cases.[13]

Disadvantages are that *(a)* a long time is required to complete the treatment in most cases; *(b)* old persons and those with foci of infection and severe hypersensitivity are often difficult to treat, requiring much time, patience and interest on the part of both patient and physician, and *(c)* the vaccine should be specially prepared and requires meticulous care in diluting and handling. Permanence of remission or cure cannot be promised to patients because our experience with chronic brucellosis has been of too few years' duration.

Brucellosis is not a self-limited disease. In the chronic stage, it shows little or no tendency to spontaneous recovery in adult life. Treatment, even at best, is difficult and uncertain in effect. However, specific vaccine therapy, modified as reported here, offers a significant advance in the treatment and prognosis of chronic brucellosis.

RECENT PROGRESS IN NUTRITION AND ITS RELATION TO DRUG THERAPY

C. A. ELVEHJEM, PH. D.
Madison, Wis.

The "Corpus" of Hippocrates not only lists many drugs, mainly of vegetable origin, but gives considerable space to a discussion of the regulation of the diet. However during the evolution of medical treatment much greater emphasis has been placed on drugs than on nutrition. This is not surprising, since as man sought food to satisfy his hunger he encountered a variety of substances which had a more or less immediate effect on the normal functions of the body. Many of these were prepared or concentrated so that they could be used to alleviate suffering or to combat disease.

The recognition of specific nutrients in the prevention of disease was impossible until a little over a hundred years ago because until that time all foods were assumed to supply a single universal nutrient. It is only within recent years that all the nutrients necessary for optimum nutrition have begun to be recognized and identified. Furthermore, druglike materials usually have an immediate effect, while the omission of an essential nutrient from the diet produces a deficiency only after a considerable lapse of time. Thus certain substances have been used variously as a therapeutic agent and as a source of an essential nutrient. One of the best examples is cod liver oil. Cod liver oil was recommended by the English physician Howel for the treatment of wounds as early as the fifteenth century. By 1730, Norwegian fishermen associated its use with the prevention of rickets. However, there was no explanation for its effect in either instance, and the scientific world hesitated to acknowledge its use. In 1837 cod liver oil was found to be a rich source of iodine, and on this basis it was entered in the pharmacopeia. However when other sources of iodine were found to be equally as effective its use fell into disrepute and cod liver oil was considered to have no greater value than other fats. In spite of this, people continued to use it and the pharmacists continued to keep it in stock. Sound basis for its use came only after careful animal experimentation had shown that cod liver oil would prevent both vitamin A and vitamin D deficiencies. Today cod liver oil is accurately standardized on the basis of its vitamin A and vitamin D content. In other words, if a vitamin or nutrient is to exhibit a pharmacologic action it must be used under specific pathologic conditions.

In spite of the greater emphasis on drugs, there has always been a close association between nutrition and drug therapy. Legislative control was combined in the Federal Food and Drug Act of 1906 and in the Federal Food, Drug and Cosmetic Act of 1938. The Council on Pharmacy and Chemistry of the American Medical Association, established in 1905, gave such considerable attention to foods that a Committee on Foods was established in 1929, which later became the Council on Foods and Nutrition. Increased knowledge of physiology has done much to give an insight into the mechanisms of the action of drugs on tissues and organs. Studies in nutrition have led to a greater degree of specificity in the use of drugs and have given a basis for the development of new specific therapeutic agents.

These relationships have been numerous, but I shall limit my discussion to those in three areas, namely, antianemic substances, amino acids and metabolic antagonists.

ANTIANEMIC SUBSTANCES

Iron therapy in anemia probably dates back to 1746, when Menghinis demonstrated the presence of iron in blood and claimed that the iron content could be increased by a diet rich in this element. However it was not until about 1830 that evidence was presented to show that the blood of chlorotic patients was low in iron and that the administration of iron increased the number of red blood cells. These observations gave rise to a large number of iron preparations for the treatment of anemia. These included insoluble forms, colloidal forms and ferric and ferrous forms. Many of these were widely used, but there was no agreement as to the efficacy of iron preparations in the treatment of simple anemia until 1928, when it was clearly established from animal studies that inorganic iron in the presence of copper is readily utilized for the synthesis of hemoglobin. Furthermore, it was shown that simple iron salts which are easily ionized are more readily utilized by the body than complex forms such as hemoglobin. It was also possible to obtain a rather definite answer concerning the relative value of ferric and ferrous forms of this element. This work clarified the knowledge regarding simple hypochromic anemia, allowed the preparation of standard forms of iron and also demonstrated that anemias which do not respond to an adequate supply of iron and copper must be due to the lack of other nutrients. Anemia due to iron deficiency was recognized as a secondary or nutritional anemia, but the so-called pernicious anemia was considered to be far removed from the state of nutrition. Pernicious or primary anemia, first described by Addison in 1849, differed from secondary anemia in the absence of a recognized cause and in the failure to respond to forms of treatment effective in other forms of the disease. In 1926-1927 Minot and Murphy reported that a number of patients suffering from pernicious anemia responded to the daily administration of 250 to 500 Gm. of mammalian liver. This immediately placed liver in the field of drug therapy, and I suppose that the reason liver had not been used previously was because it was

---

Read before the Scientific Award Ceremony of the American Pharmaceutical Manufacturers' Association in honor of the American Medical Association, New York, Dec. 16, 1947.

needed in such large quantities. Anti-pernicious-anemia concentrates were prepared in large volume by many pharmaceutical companies. Great difficulty was encountered in standardizing the products because in the absence of animal assays it was necessary to test all the preparations on human subjects. Even so, excellent concentrates were manufactured, and these preparations were standardized and accepted in the "United States Pharmacopeia."

It is not surprising that pernicious anemia was not produced in experimental animals when only a few of the vitamins were recognized. In order to keep the animals alive long enough for changes in the blood to occur it was necessary to add several crude concentrates, and these could easily carry unknown factors. However, as each new member of the vitamin B complex became available in pure form, workers had a new hope that a pernicious-anemia-like condition might be produced. Each new attempt ended in failure, and finally it was found that rats could be maintained for long periods with no evidence of anemia on highly purified rations in which all the B vitamins were supplied in synthetic form. If a pernicious anemia factor or an extrinsic factor were required by this animal, where was the required supply obtained? It was only through the use of the newly discovered sulfonamide drugs that additional deficiencies were produced in the rat. When sulfaguanidine was added to the basal ration of a young rat, growth retardation resulted, and later it was found that there was a constant development of leukopenia and agranulocytosis. The condition was prevented with whole liver and with many liver extracts known to be rich in the anti-pernicious-anemia factor. But the anemia was not severe, and it was not a characteristic macrocytic anemia. Today it is known that the addition of the sulfonamide drugs decreased the synthesis of folic acid and biotin by the bacteria in the intestinal tract and that the blood dyscrasias developed largely because of a folic acid deficiency. In this connection it is interesting to note that the incidence of agranulocytopenia increased from 3 per cent among patients admitted to a children's hospital before the introduction of sulfonamide medication to a maximum of 12 per cent in 1942, when the use of sulfadiazine was at its peak. Folic acid therapy has been found to be of considerable value in the treatment of these patients. Studies in the field of nutrition, therefore, developed a means of combating the secondary effect of some of the sulfonamide drugs.

The greatest progress in the development of the knowledge of folic acid came from the use of microorganisms and chicks. As early as 1939 Hogan and Parrott found that chicks placed on purified rations which were adequate for the rat grew normally when 4 per cent of a water extract of liver was used but that anemia developed when it was used at lower levels. Similar studies were in progress in the laboratory at the University of Wisconsin when Snell and Peterson were working on a factor necessary for the growth of the Lactobacillus casei, and when preparations containing the bacteria were fed to chickens receiving purified rations containing all the known vitamins, normal growth and hemoglobin formation were obtained. The use of microbiologic assays facilitated the final isolation, characterization and synthesis of folic acid, or pteroylglutamic acid, by the workers at the Parke-Davis and Lederle laboratories.

The availability of synthetic folic acid has permitted its use in addisonian anemia, in nutritional macrocytic anemia and in sprue. It is now generally recognized that its action is not complete, but I am not competent to discuss the details of the relationship in human therapy. However, I do want to emphasize that with the availability of this substance it has been possible to extend studies on animal nutrition so that further knowledge may be gained regarding other anti-anemic substances. For example, chicks fed a synthetic diet will develop normally if folic acid is supplied in addition to the other known B vitamins. However, if certain natural rations containing soy bean oil meal and corn meal are used, a retardation in growth results, which is prevented by the administration of highly purified anti-pernicious-anemia preparations. These preparations contain extremely small amounts of folic acid. Somewhat similar results are obtained in the rats, but the results are much more erratic, undoubtedly because of a greater degree of intestinal synthesis. It is important to point out that neither of these species of animals shows anemia and that the only apparent deficiency is lack of growth.

Dogs develop remarkably well on synthetic diets containing no folic acid, but by the elimination of one of the known vitamins, especially nicotinic acid, a conditioned deficiency can be produced which will also respond to highly purified pernicious anemia preparations. In this instance an anemia does develop which may be called a macrocytic anemia. I do not wish to conclude that the substance active in the dog is the classic anti-pernicious-anemia factor, but it is important to point out that these new methods give a means of measuring additional factors and that eventually the production of true pernicious-anemia-like conditions in an animal should be possible.

Furthermore, deficiencies can be produced in animals such as the monkey, the mink and the fox which do not respond to pernicious anemia preparations but do respond to the addition of whole liver or raw milk. The activity in the whole liver can be concentrated, and it now appears that there may be more than one additional factor. It is also interesting that in both the monkey and the mink certain paralytic symptoms appear which may possibly be related to the degenerative conditions seen in human pernicious anemia and which may be aggravated when pure folic acid is used rather than liver preparations. It is interesting to recall that most of the experimental work on iron and copper has been done with milk diets, and now milk has been shown to contain the additional factors needed for hemopoiesis.

At the present time folic acid has not replaced liver preparations and it cannot be said that there are clearcut methods for the assay of pernicious anemia activity, but it is evident that there is a closer approximation to a complete understanding of the syndrome.

Furthermore, pernicious anemia is undoubtedly a disease of nutritional origin, although the relationship is complicated by the indirect effect of the production and destruction of nutrients in the intestinal tract by the bacteria. So-called synthetic diets may yield a more favorable environment for organisms producing needed vitamins than the mixtures of natural foods which man relies on. Conditioned deficiencies may therefore develop which can be overcome by the addition of factors which normally do not need to be supplied preformed in the diet.

AMINO ACIDS

Proteins have been given little consideration as therapeutic agents, undoubtedly for two reasons. First, proteins must be supplied in large amounts in order to produce a significant effect, and, secondly, medical workers have for many years felt that the protein content of the diet should be decreased rather than increased. During the past few years there has been a tremendous change in this point of view, and at the present time there is much interest in increasing the intake of protein in many pathologic conditions and also a greater interest in the use of protein hydrolysates and amino acid mixtures than in the use of intact proteins. Much of this interest is undoubtedly due to the fact that nutrition workers have clearly demonstrated that a deficiency of amino acids may develop much more rapidly than a deficiency of vitamins or minerals. Knowledge in this field has accumulated because it is now possible to feed animals a diet complete in all factors except protein or amino acids and because of the improved methods for the estimation of individual amino acids. One of the problems encountered in the use of free amino acids is that of imbalance. The importance of imbalance grew out of the early work in which it was shown that the addition of 40 parts of corn to a synthetic diet containing 15 per cent protein and no nicotinic acid produced a marked retardation in the rate of growth of rats. This retardation was completely counteracted by the addition of a small amount of nicotinic acid, and later it was shown that tryptophane had the same effect. Further work has shown that other proteins low in tryptophane, such as gelatin, produce the same effect as that observed with the corn rations. In fact, if 2 per cent of an acid-hydrolyzed casein is added to a ration containing 9 per cent of casein, a notable retardation in growth occurs. This reduced growth is corrected with the use of either nicotinic acid or tryptophane. If 2 per cent of unhydrolyzed casein is used, an increased rate of growth results. The toxic effect of the acid-hydrolyzed casein is not due to any injurious substance formed during the hydrolysis since a mixture of pure amino acids compounded to be equal to 2 per cent of the acid-hydrolyzed casein produces the same effect. Apparently in the absence of tryptophane certain amino acids have a definite injurious effect when fed at increased levels and in the free form.

Further work has shown that the amino acids most active in this respect are threonine and phenylalanine. It has also been shown that the injection of threonine has the same effect as the oral administration. It is clear, therefore, that in spite of the potential possibilities in the use of amino acid combinations there is much to learn regarding the proper concentrations of the individual amino acids in these mixtures.

Can a mixture of pure amino acids completely replace proteins in a diet? The answer to this question apparently depends largely on the age of the animal used. For example, Cannon and his coworkers have used mature rats and have subjected them to a protein depletion. When these depleted animals were given a mixture of sixteen amino acids patterned after the composition of casein, the gain in weight was identical to that obtained when they were given a comparable amount of casein. In other words no evidence for the need of an accessory factor to promote the utilization of these amino acids was obtained. Woolley, working with young mice, has found that when they are given a purified ration in which the nitrogen source is a supplemented casein hydrolysate maximum growth is not obtained until certain proteins or concentrates from these proteins are added. He has shown that the activity of different proteins is similar to their strepogenin content as determined with L. casei. My colleagues and I have worked in our laboratory with weanling rats and have obtained a growth of as much as 3 Gm. per day by using a mixture of the ten essential amino acids supplemented with glutamic acid to provide a total nitrogen content equal to that supplied by 10 per cent of casein. The addition of small amounts of intact proteins at the expense of glutamic acid gave only a slight increase in the rate of growth. It appears, therefore, that if intact casein contains a growth-promoting factor for rats other than the essential amino acids then the concentration in casein is too low to satisfy the requirement. Rose has reported the existence of a growth factor for rats in casein which has properties in common with strepogenin. In the light of the work on amino acid imbalance it is apparent that each amino acid must be supplied in optimum concentration before the need for accessory peptide-containing compounds can definitely be settled. In fact the excretion of many of the amino acids in the urine is increased when proteins of poor quality are fed, which means that the amino acid pattern is not optimal for use as fed to rats and mice.

This leads to the interesting observation that has recently been made regarding the rate of liberation of different amino acids from a given protein. For example, in casein the essential amino acids seem to be liberated at a more rapid rate than the nonessential ones. Cystine seems to be liberated at an extremely slow rate. Heat treatment of different proteins also alters the rates at which the amino acids are liberated. Perhaps there is a definite pattern of liberation which will give optimum utilization of the essential amino acids and which also influences the intestinal flora in such a way as to give better nutrition. In any case the kind and the amount of amino acids as well as the rate at which they are supplied to human beings may have an important bearing not only on adequate protein intake but on total nutrition. The availability of protein hydrolysates and free amino acids will do much to facilitate studies necessary to clarify this relationship and will be useful in supplementing diets shown to be inadequate on this basis.

METABOLIC ANTAGONISTS

As I indicated earlier, the introduction of druglike materials in therapy has been dependent largely on trial and error. It is only recently that chemical constitution has been closely correlated with biologic activity. The developments in nutrition have done much to make studies possible.

In the first place, metabolic studies can be carried out only when it is possible to feed an adequate and known diet. Secondly, the availability of many of the nutrients in pure and synthetic form has allowed modification in the structure of these compounds. Out of this work has come the general recognition that slight modifications in the structure of certain vitamins may change them from essential nutrients to metabolic antagonists. A relationship of this kind was encountered in 1937, when the anti-blacktongue activity of a number of derivatives of nicotinic acid was studied. In this work it was found that 3-acetylpyridine actually aggravated the blacktongue condition in dogs. The significance of this observation was not realized until Woolley extended his studies on the biochemical antagonism. The work which attracted greatest attention was that of Woods and Fildes, who showed that para-aminobenzoic acid has antisulfonamide activity. This effect was explained on the basis that para-aminobenzoic acid is an essential nutrient and that the sulfonamide compounds functioned by interfering competitively with para-aminobenzoic acid. The discovery of this relationship prompted attempts to produce similar structural changes in other vitamins in the hope of producing other bacteriostatic compounds. The growth of certain bacteria was inhibited by 3-pyridinesulfonic acid, and the inhibition was reversed with nicotinic acid. "Pantoyltaurine" likewise produced bacteriostasis, which was reversed by pantothenic acid. Although much of the early work was done with bacteria, it was soon recognized that severe vitamin deficiencies could be produced through the use of antivitamins related to thiamine, riboflavin, vitamin K, vitamin E, biotin and other factors. Of great interest is the recent work on the use of 7-methyl folic acid in the production of a more severe anemia in experimental animals. This effect appears to be different from the action of the sulfonamide drugs which I mentioned earlier, since it is now known that para-aminobenzoic acid is a part of the folic acid molecule and that the sulfonamide drugs prevent the incorporation of para-aminobenzoic acid into the folic acid. Specific antagonists for folic acid may give the final answer to the relation of folic acid to the anti-pernicious-anemia factor.

The studies have not been limited to vitamins. Dyer has shown that ethionine is toxic for young rats maintained on a diet free from methionine and that the toxicity could be prevented by the addition of the latter. In all cases the relationship between the nutrition and the drug therapy is obvious, and I believe that future studies along this line will be most productive.

For several years we have been studying the possible relation of nutrition to resistance to virus infection, using mice and several viruses closely related to the virus of infantile paralysis. We have found that mice deficient in thiamine are almost completely resistant to paralysis produced by these viruses. In the presence of adequate thiamine the incidence of paralysis reaches approximately 100 per cent. Similar results have been obtained with riboflavin and pantothenic acid, although the differences have not been so striking. It has also been possible to increase the resistance by producing potassium and phosphorus deficiencies. Recently this work has been extended to the field of amino acids, and we find that mice deficient in tryptophane show less paralysis when infected with the virus than those receiving adequate quantities. Furthermore, a more severe tryptophane deficiency develops in infected mice than in uninoculated ones. This may indicate that the virus has a preference for certain amino acids. This is not surprising, since it is known that the virus multiplies rapidly and that it is composed largely of protein material. This logically suggests the possibility of using certain analogues of tryptophane to alter or modify the development of certain viruses. There are undoubtedly many difficulties and obstacles in a program of this kind, but even if practical applications do not come out of this work much fundamental knowledge must accumulate.

In conclusion it may be said that from the point of view of drug therapy a compound having positive nutritional effects should theoretically disappear from the list of useful drugs. If the compound is known and its content in foods can be estimated, the corresponding deficiency should be prevented through the use of natural or fortified food and the deficiency should never appear. However, from past experience it is obvious that optimum nutrition for all will never be obtained and that there will always be need for these specific compounds for clinical use. The main objection to the use of pure substances in nutritional deficiencies is the fact that unknown factors may be ignored. That is why for several years vitamin B complex preparations always contained some natural sources of nutrients. The availability of synthetic folic acid apparently does not completely eliminate this necessity, and it may be some time before the natural sources can completely be ignored.

Studies on the development of compounds having a negative nutritional effect are in their infancy, and it is impossible to predict the extent to which these compounds may eventually be used in the treatment of infectious diseases. Nevertheless it is apparent that the search for new agents for use in human therapy will in the future be based largely on studies with animals and micro-organisms. Work in the field of nutrition has done much to establish the metabolic similarity between all living cells, which is the basis for this new type of approach.

TUBULO-VASCULAR SYNDROME—Renal vasconstriction is a rather general reaction occurring whenever the efficiency or integrity of the circulation is threatened by cardiac injury or disease, skeletal trauma, hemorrhage, dehydration, and comas. Presumably, the immediate effect of this diversion of blood from the kidney is to make more of the low cardiac output available to vital areas—heart, brain, lungs, liver. So far so good. A few hours of oliguria or even anuria is not a catastrophe; and it is a fact that the kidney can safely stand complete interruption of its arterial blood supply for 20 or 30 minutes. But when the state of renal vasoconstriction and marked ischemia persists for 12 to 24 hours or longer, something apparently happens to the vitality of the tubular epithelium and a whole series of dysfunctions arise, with or without structural alterations, that may lead irreversibly to uremia and death even though the original injury to the body or to the circulation may already have been corrected. . . . Leiter, Louis, M.D., Renal Diseases: Some Facts and Problems; Annals of Internal Medicine, February 1948, Vol. 28:241.

GONOCOCCIC MENINGITIS FIFTEEN YEARS AFTER URETHRITIS

STEPHEN L. STIGLER, M.D.
and
JAMES S. McLESTER, M.D.
Birmingham, Ala.

Gonococcic meningitis is looked on as a rare disease. In many text books it is not even included among the complications of gonorrhea. The first mention of it was possibly in 1805, when nervous manifestations were described in conjunction with gonorrhea.[1] It was not until 1879 that the gonococcus was discovered, and not until 1905[2] that positive means of identification, such as the differential sugar reactions and the agglutination, agglutinin absorption and complement fixation tests, were introduced. In 1909 the review of the literature of this malady by Henderson and Ritchie[1] closed the era of purely clinical diagnosis and opened a new era of laboratory confirmation.

What then are the criteria necessary to establish the identity of the gonococcus? Birkhaug and Parlow[3] have stated that in addition to the morphologic and cultural characteristics of this organism, the only reliable criterion is either its fermentation of dextrose or one of its serologic reactions, such as agglutination, agglutinin absorption or complement fixation. Branham, Mitchell and Brainin[4] have rated the dependability of the laboratory procedures for the identification of the gonococcus as follows: 1. The cultural features and the type of colony are the most fundamental and typical differences. The gonococcus produces a delicate growth on blood agar, with small translucent convex colonies. 2. The fermentation of various sugars is typical in that dextrose is readily fermented but no other sugar is so affected. 3. The alkali solubility test is of value but is not an absolute criterion. In the test of Thomson as described by Pelouze[5] the gonococcus is, as a rule, instantly and completely dissolved, leaving a completely clear solution. Meningococci are partially dissolved, but the stroma remains, leaving an opalescent fluid. Micro-organisms such as streptococci and staphylococci are untouched in the dilution of alkali used. 4. Serologic methods of differentiation have not been satisfactory, as gonococci are often agglutinated by polyvalent antimeningococcus serum as well as by antigonococcus serum. Nearly all gonococci are agglutinated more strongly by type II antimeningococcus serum than by the other type serums, although some show considerable cross agglutination.

Since all cases of gonococcic meningitis prior to 1905 were diagnosed without benefit of laboratory confirmation, this date may reasonably be used as a starting point for any present day review of this disease. Since that time 40 cases have been reported. In some of these instances adequate proof of the diagnosis is lacking, and therefore these cases must be considered merely as possibly or probably gonococcic in origin. Such reports would include those of Wynn,[6] Prochaska,[7] Bieck,[8] Romback,[9] Henderson and Ritchie,[1] Morelli[10] and Lindenfeld.[11] There remain 24 patients,[12] including the present one, in regard to whom the diagnosis can be considered to have been adequately established.

Gonococcic meningitis occurs more commonly in young male adults and, as a rule, it is secondary to a genital infection. All age groups have been involved, including a newborn infant.[2] Branham and associates[4] reported 2 cases of simple, uncomplicated primary gonococcic meningitis without any recognizable focus of infection, and as far as could be determined, no known opportunity for infection. It is interesting that our patient had experienced no gross recurrence of his primary gonorrheal urethritis in fifteen years, yet his meningitis apparently originated from an old focus in the prostate gland.

The signs and symptoms of gonococcic meningitis are apparently indistinguishable from those of meningococcic meningitis; the presence of gonorrhea or a suggestive history often indicates the true nature of the disorder. From the point of view of the pathologist the two diseases are grossly similar. In several instances gonococcic meningitis appeared in the presence of gonorrheal arthritis.

Marvin and Wilkinson[12i] in their review of the literature in 1938 told of a mortality of 45 per cent; they reported the first case in which the patient was treated with a sulfanilamide. Undoubtedly with the present day use of penicillin and the sulfonamide compounds, the mortality rate should decline markedly.

Five hundred cultures of blood and spinal fluid were made by Branham and associates[4] in a search for the meningococcus, and 10 (2 per cent) were found to contain gonococci. Subsequently these authors reported 3 additional cases. This leads one to suspect that gonococcic meningitis is more frequent than is commonly believed.

REPORT OF A CASE

C. M., a white man aged 35, was admitted to the hospital on June 3, 1946 because of nausea and vomiting of three days' duration. He had been well until three days prior to admission, when he became dizzy and nauseated and had fever. Shortly thereafter he experienced chilliness, generalized muscular cramping, malaise and a severe frontal headache. Stiffness of the neck then appeared. All symptoms

---

From the Department of Medicine of the Medical College of Alabama, a department of University of Alabama, Birmingham.

[1] Henderson, G., and Ritchie, W. T.: Gonococcal Meningitis, Rev. Neurol. & Psychiat. **7:** 75, 1909.

[2] Bradford, W. L., and Kelley, H. W.: Gonococcic Meningitis in a Newborn Infant, Am. J. Dis. Child. **46:** 543, (Sept.) 1933.

[3] Birkhaug, K. E., and Parlow, A. L.: Gonococcal Infection of the Kidney, J. Urol. **20:** 83, 1928.

[4] Branham, S. E.; Mitchell, R. H., and Brainin, W.: Gonococcic Meningitis, J. A. M. A. **110:** 1804, (May 28) 1938.

[5] Pelouze, P. S.: Gonorrhea in the Male and Female, Philadelphia, W. B. Saunders Company, 1931.

[6] Wynn, W. H.: General Gonococcal Infection, Lancet **1:** 352, 1905.

[7] Prochaska, A.: Bakteriologische Untersuchungen bei gonorrhoischea Allgemeininfektionen, Deutsches Arch. f. klin. Med. **83:** 184, 1905.

[8] Bieck, I. D.: Wratsch. Gaz. **14:** 1340, 1907.

[9] Romback, K. A.: Meningitis Gonorrhoica, Nederl. tijdschr. v. geneesk. **2:** 1262, 1907.

[10] Morelli, F.: Contributo clinico allo studio dellé localizzazioni meningee del gonococco di Neisser, Riv. crit. di clin. med. **12:** 533-536, 1911.

[11] Lindenfeld, L.: Ueber Meningitis Gonorrheica, Med. Klin. **18:** 176, 1922.

[12] *(a)* Bruusgaard, E., and Thjotta, T.: Gonococcus Sepsis, Norsk mag. f. laegevidensk. C **85:** 808, 1924. *(b)* Lorentz, K.: Ueber Meningitis Gonorrhoica, Dermat. Wchnschr. **89:** 1305, 1929. *(c)* Smith, D.: Gonococcal Meningitis, Lancet **1:** 1217, 1922. *(d)* Weil, P. E.; Duchon, L., and Bertrand: Meningite primitive a gonocócques traitée par un auto lysot-vaccin, Bull. et mém. Soc. med. d. hop. de Paris **47:** 1799, 1931. *(e)* Coste, F.; Rivalier, E., and Layani, F.: Nouveau cas de meningite gonococcique, Bull. et mém. Soc. med. d. hôp. de Paris **47:** 1803, 1931. *(f)* Kroes, C. M.: Etterige meningitis von ongewoman oosprong, Nederl. tijdschr. v. geneesk. **13:** 1957, 1924. *(g)* Grenet, H.; de Pfeffel, L., and Levent, R.: Vulvo-vaginite; septicemie, endocardite et meningite a gonococques, Arch. de méd. d. enf. **33:** 731, 1930. *(h)* Strumia, M. M., and Kohlhas, J. J.: Gonococcic Meningitis, J. Infect. Dis. **53:** 212, 1933. *(i)* Marvin, H. P., and Wilkinson, W. E.: Gonococcic Meningitis, J. A. M. A. **110:** 800 (March 12) 1938. Bradford and Kelley.[2] Branham, Mitchell and Brainin.[4]

became more severe on the day of admission. The vomitus now became dark brown, and there was severe epigastric pain. Red spots appeared on his skin; these were generalized in distribution and were not accompanied by itching or other discomfort. His past history disclosed that he had contracted gonococcic urethritis at the age of 20 years and that following treatment there had been no recurrence. Since this infection, however, he had suffered occasional slight dysuria.

The patient was a thin white man who appeared to be acutely ill. The blood pressure was normal in both arms, and the temperature was normal. The pulse rate was 94 and the respirations 22 per minute. Petechiae, varying from bright red to brown, were present in the skin and the mucous membranes. No abnormalities of heart or lungs were found. Some generalized tenderness of the abdomen was noted, but no masses were felt. Examination of the genitalia and the rectum did not reveal any abnormalities. Opisthotonos was present, and flexion of the neck caused marked pain. A Brudzinski sign was observed. The deep reflexes were hyperactive on both sides, and there was a bilateral Kernig sign.

A lumbar puncture brought cloudy fluid, which exerted a pressure of 230 mm. of water. About 15 cc. of fluid was withdrawn, and in its place was injected 10,000 units of penicillin in 10 cc. of isotonic solution of sodium chloride. The spinal fluid showed 94,000 white cells per cubic millimeter, all of which were polymorphonuclear leukocytes. Smears of the fluid showed gram-negative intracellular diplococci. The total protein was 1.93 Gm. per hundred cubic centimeters. The sugar was less than 20 mg. per hundred cubic centimeters. The globulin was 4 plus. The Wassermann reaction was negative. The colloidal gold curve was 1355555555.

The urine on admission was normal except for the presence of albumin. The blood count on admission showed red cells 4,610,000, white cells 27,300, hemoglobin 90 per cent; the differential cell count showed 92 segmented forms and 8 lymphocytes. The Wassermann test was negative.

Because the persistent vomiting prevented adequate oral medication, 5 Gm. of sodium sulfadiazine was given intravenously in 1,000 cc. of an isotonic solution of sodium chloride containing dextrose in a concentration of 5 per cent. Fifty thousand units of penicillin was given intramuscularly, and subsequent injections of 30,000 units each were given every three hours. After the initial intravenous dose of sodium sulfadiazine, the patient was given orally 2 Gm. of sulfadiazine every four hours, to which was added an equal amount of sodium bicarbonate. Suitable supportive measures were also applied. Two days after admission the blood sulfadiazine level was 14.2 mg. per hundred cubic centimeters.

The patient remained afebrile and improved rapidly. Three days after admission, a second lumbar puncture was done, and an initial pressure of 290 mm. of water was observed. The slightly cloudy fluid was slowly removed until the pressure reached 100 mm. of water, at which time 15,000 units of penicillin was injected intrathecally. Examination of this fluid revealed 850 white cells per cubic millimeter, all of which were polymorphonuclear leukocytes. No organisms were seen on smears, and no growth appeared on the cultures. The sulfadiazine level of the spinal fluid was 6.5 mg. per hundred cubic centimeters. The use of this drug was stopped on the twelfth day, after a total of 133 Gm. had been administered. The use of penicillin was discontinued after 1,000,000 units had been administered. Recovery was uneventful, and apparently there were no residual effects.

Prostatic fluid obtained at this time by massage revealed extracellular gram-negative diplococci, but no organisms were obtained from cultures. This is not surprising, however, in view of the medication to which the patient had been subjected.

Because of the hematemesis and epigastric pain during the early part of the illness, appropriate roentgenograms were made. These did not reveal any abnormality of esophagus, stomach or duodenum.

The organism grown from the spinal fluid obtained at the first lumbar puncture was identified as the gonococcus. A blood agar plate was inoculated with fresh spinal fluid and incubated aerobically. A chocolate agar plate was inoculated with fresh spinal fluid and incubated in 10 per cent carbon dioxide. After twenty-four hours the blood agar plate showed no growth, and the chocolate agar plate revealed small, dewdrop-like colonies, which were found to be gram-negative diplococci. Maltose, sucrose and dextrose were inoculated with these organisms, and dextrose was the only sugar fermented after forty-eight hours under carbon dioxide. Several attempts to agglutinate the organism with types I, II, III and IV antimeningococcus serums were unsuccessful. A fresh culture of the organism was grown on chocolate agar in 10 per cent carbon dioxide, and the culture was then flooded with 10 per cent dimethyl-para-phenylenediamine hydrochloride. The colonies gave a positive oxidase reaction, turning pink and then black. These tests confirmed the diagnosis of gonococcic meningitis.

SUMMARY

Twenty-four cases of proved gonococcic meningitis are found described in medical literature, but it is probable that the disease occurs more frequently than this figure would indicate.

The disease occurs chiefly in young male adults of both the white and the Negro race, and is generally secondary to gonorrheal urethritis.

The criteria for the positive identification of gonococcus are presented.

A case of gonococcic meningitis, probably secondary to chronic *gonococcic prostatitis, is reported.*

CLINICAL EVALUATION OF THE ANALGESIC METHADON

ELIZABETH B. TROXIL, M. D.
Minneapolis

A new synthetic analgesic, originally prepared by German chemists and known as drug 10820, was made available to this country following World War II. The original report was published by the U. S. Department of Commerce.[1] The Council on Pharmacy and Chemistry of the American Medical Association has given this compound the nonproprietary name of methadon.[2]

The compound is a white crystalline substance soluble in water and alcohol, but insoluble in ether, having the following formula: 6-dimethylamino-4,4-diphenyl-3-heptanone hydrochloride. The compound contains an asymmetric carbon atom and is supplied as the racemic mixture. It is quite possible that the *d*- and *l*- isomers may have different degrees of activity.

From the Department of Pharmacology, University of Minnesota Medical School.

Acknowledgment is made to the Abbott Laboratories, Ciba Pharmaceutical Products, Inc., Eli Lilly & Company, Lederle Laboratories, Inc., Parke, Davis & Company, G. D. Searle & Co. and the Winthrop Chemical Co., Inc., for research grants given to the regents of the University of Minnesota for studies in clinical pharmacology.

Dr. Cecil J. Watson, Professor of Medicine; Dr. Owen H. Wangensteen, Professor of Surgery; Dr. John L. McKelvey, Professor of Obstetrics and Gynecology; Dr. A. B. Baker, Professor of Neurology, and Dr. Ruth M. Boynton, Director, Students Health Service, at the University of Minnesota Hospitals generously used the analgesic methadon on their services and allowed me to study and observe their patients.

[1] Kleiderer, E. C.; Rice, J. B.; Conquest, V., and Williams; J. H.: Report 981, U. S. Department of Commerce, Office of the Publication Board, Washington, D. C.

[2] Smith, A. E.: Personal communication to the author.

A pharmacologic investigation was undertaken by Scott and Chen,[3] who reported that the drug had some of the characteristics of both morphine and meperidine hydrochloride ("demerol hydrochloride" N.N.R.) in animals. The effects on the nervous, circulatory and respiratory systems, as well as the side effects, were similar to those of morphine. Action on the intestinal tract consisted of a morphine-like short period of spasm followed by an antispasmodic effect equal to that produced by meperidine hydrochloride. No tolerance or addiction to the drug was found. Determination of the pain threshold by the Wolff-Hardy technic indicated that, weight for weight, methadon was a more potent analgesic than either morphine or meperidine.

Woods, Wyngaarden and Seevers[4] have studied the addiction potentialities in rhesus monkeys and have found that physical dependence and withdrawal symptoms do not occur after chronic administration of methadon. They also found no tolerance to the drug but rather an increased susceptibility.

Recent investigations have been carried out by Isbell, Wikler and co-workers,[5] who found that 2.5 mg. of methadon given subcutaneously raised the pain threshold (Wolff-Hardy technic) as much as 10 mg. of morphine. Doses of 5 mg. of methadon produced little or no effect on temperature, pulse rate, blood pressure and respiratory rate in man. Larger doses slowed the pulse and lowered the blood pressure. Doses of 20 to 30 mg. of the drug always produced narcosis and sedation. They[6] also observed the effects of methadon in former morphine addicts and found that the abstinence symptoms from morphine could be controlled with methadon. When methadon was withdrawn abruptly after prolonged administration, the abstinence syndromes were so mild that treatment was not necessary.

Kirchof and David[7] have studied this drug in 84 patients in doses ranging between 5 and 15 mg. and reported that the control of pain was adequate and side effects were minimal. They did not observe withdrawal symptoms, sedation or hypnosis.

Scott, Livingstone, Jacoby and Broberg[8] have given methadon preoperatively and have observed the drug to be inferior to morphine due to its lack of sedative properties. However, it was found to be an effective analgesic.

Scott, Kohlstaedt and Chen[9] have reported use of this analgesic in a series of 210 patients, with 72.9 per cent obtaining complete relief of pain. The incidence of side effects in their patients was minimal and relatively unimportant.

Gentling and Lundy[10] have used methadon in 106 patients with a variety of diseases and reported that all but 4 patients had satisfactory relief of pain.

In April 1946 clinical trials of the drug were instituted at the University of Minnesota Hospitals. Up to the present time methadon has been given to a total of 400 patients for relief of all types of pain. This group consists chiefly of adults, except for 10 children.

Approximately 85 per cent of the drug was obtained from the Eli Lilly Laboratories, Indianapolis, under the name of "dolophine." The rest of the drug was supplied by the Winthrop Chemical Co., Inc., as "adanon," by the Abbott Laboratories as "AN 148" and by Parke, Davis & Company as "diaminon."

Table 1.—*Analgesia Obtained*

Clinical Condition	No. of Patients	Degree of Relief: Minimal or None No.	Minimal or None %	Moderate or Good No.	Moderate or Good %	Very Good or Complete No.	Very Good or Complete %
Postoperative	134	18	14	42	31	74	55
Cancers	50	8	16	18	36	24	48
Bone Pain	32	3	9	16	50	13	41
Labor	25	17	68	5	20	3	12
Dysmenorrhea	11			1	9	10	91
Cough	13			2	15	11	85
Brain lesions	27	1	4	12	44	14	52
Headache	19	8	42	5	26	6	32
Miscellaneous	89	14	16	24	27	51	57
Average percentage			19		29		52

Table 2.—*Comparison of Methadon with Morphine and Meperidine*

Dose of Methadon	No. of Patients	No. Preference Pts.	No. Preference %	Methadon Preferred Pts.	Methadon Preferred %	Morphine (10 to 15 Mg.) Preferred Pts.	Morphine (10 to 15 Mg.) Preferred %	Meperidine (75 to 150 Mg.) Preferred Pts.	Meperidine (75 to 150 Mg.) Preferred %
5 mg.	47	22	47	10	21	15	32		
7.5 and 10 mg.	43	25	58	11	26	7	16		
5 mg.	35	16	46	11	31			8	23
7.5 and 10 mg.	21	4	19	11	52			6	29

Some of the conditions for which it was used to alleviate pain were: postsurgical, primary and metastatic carcinoma, arthritis, herniated disk, thalamic pain, myalgia, neuritis, headache, ulcer of the leg, anginal pain, cholecystitis, common duct stone, dysmenorrhea, labor and gastric and duodenal ulcers.

The methods of administration were oral (as capsules, tablets and elixir), hypodermic and intravenous. Onset of action was two minutes when given intravenously, within fifteen or twenty minutes when given hypodermically, or when given orally as the elixir, and thirty minutes when given orally in capsules or tablets. By all routes of administration it was found that the average duration of action was from three to four hours, with many of the patients obtaining relief for as long as eight to twelve hours. The majority of patients received the drug hypodermically at three to four hour intervals as necessary. When continuous use of analgesics was indicated, the elixir was substituted successfully for hypodermic injection on the patient's discharge from the hospital. No appreciable difference in potency was found between hypodermic injection and the oral administration of the elixir. However, in equivalent amounts the capsules and tablets were found to be inferior to the hypodermic, intravenous and elixir forms of the drug, requiring almost twice the dose to produce the same effects.

---

[3] Scott, C. C., and Chen, K. K.: The Action of 1,1-Diphenyl-1-(Dimethylaminoisopropyl)-Butanone-2, a Potent Analgesic, J. Pharmacol. & Exper. Therap. 87: 63 (May) 1946.

[4] Woods, L. A.; Wyngaarden, J. B., and Seevers, M. H.: Addiction Potentialities of 1,1-Diphenyl-1-(B-Dimethylaminopropyl)-Butanone-2 Hydrochloride (Amidone) in the Monkey, Proc. Soc. Exper. Biol. & Med. 65: 113 (May) 1947.

[5] Isbell, H.; Wikler, A.; Eisenman, A. J., and Frank, K.: Effect of Single Doses of 10820 on Man, Federation Proc. 6: 341 (March) 1947.

[6] Isbell, H.; Eisenman, A. J.; Wikler, A.; Daingerfield, M., and Frank, K.: Treatment of the Morphine Abstinence Syndrome with 10820, Federation Proc. 6: 340 (March) 1947.

[7] Kirchof, A. C., and David, N.: Clinical Trial of a New Synthetic Heptanone Analgesic (Dolophine), West. J. Surg. 55: 183 (March) 1947.

[8] Scott, W. W.; Livingstone, H.; Jacoby, J. J., and Broberg, G. R.: Early Clinical Experience with Dolophine (No. 10820), Anesth. & Analg. 26: 18 (Jan.-Feb.) 1947.

[9] Scott, C. C.; Kohlstaedt, K. G., and Chen, K. K.: Comparison of the Pharmacologic Properties of Some New Analgesic Substances, Anesth. & Analg. 26: 12 (Jan.-Feb.) 1947.

[10] Gentling, A. A., and Lundy, J. S.: A New Analgesic, AN—148: Preliminary Report, Proc. Staff Meet., Mayo Clin. 22: 249 (June 25) 1947.

Originally, 2.5 and 5 mg. doses of methadon were used. The 2.5 mg. doses relieved only the mildest pain, while 5 mg. doses relieved only moderately severe pain. The doses were therefore increased to 7.5 and 10 mg., which were adequate to relieve patients experiencing extremely severe pain. In 1 patient in the terminal phase of generalized leukemic reticuloendotheliosis, 15 and 20 mg. of the drug administered intravenously every two hours were necessary for the relief of excruciating bone pain. Methadon in doses of 10 mg., either hypodermically or intravenously, proved to be more effective than 15 mg. of morphine in this patient.

A summary of the number of patients, type of pain treated and degree of relief obtained is shown in table 1. All degrees of pain, all doses from 2.5 to 20 mg. and all routes of administration are included, although not indicated, in the tabulation.

Table 3.—*Incidence of Side Effects*

Clinical Condition	No. of Patients	Side Effects		Nausea and Vomiting	Amnesia	Sedation	Dizziness	Dry Mouth	Headache	Euphoria	Miosis	Itching
		Pts.	%									
Postoperative	134	5	4	1		4	1				1	
Cancers	50	2	5	1		1	1					
Bone Pain	32	2	8	2			1					1
Labor	25	8	32	4	2	2	1	2				
Dysmenorrhea	11	7	63	4		2			1	1		1
Cough	13	5	45	2		3	1					
Brain lesions	27	5	20			4						
Headache	19	6	33	4		2	2				2	
Miscellaneous	89	8	11	3		3	3					2

Sixty-seven side effects occurred in 52 patients; 13 per cent of patients had side effects.

Eighty-one per cent of the patients had adequate or complete relief of pain, and this figure would be increased to 86 per cent if the group of patients who received methadon for labor pains were excluded, since the drug has proved to be ineffective in this type of pain. Effects of methadon that were particularly notable were the minimal amount of sedation, the low incidence of psychologic phenomena, such as euphoria and clouding of mentality, and the presence of a relaxing effect. Most patients expressed pleasure in being able to carry on with normal activities even when receiving 10 mg. of the drug hypodermically every three hours.

It was possible to use methadon to relieve muscular spasm and pain in patients with bulbar and spinal poliomyelitis even when they were confined in respirators because of the minimal sedative effect. Doses of 5 mg., and occasionally 7.5 mg., were adequate and did not produce any respiratory difficulty. The effects of this drug were striking in these cases, since other narcotic analgesics or barbiturates caused severe respiratory depression.

Methadon was also used effectively to relieve headaches due to brain tumor, head injury, brain abscess and hemiplegia and headaches following encephalograms and ventriculograms without encountering any undesirable depressant effects.

Obstetric patients in labor received doses of 5 to 10 mg. without resulting cyanosis of the infant, but the analgesic effect was inferior to that of meperidine hydrochloride.

When incorporated in a syrup, the drug is effective in depressing the cough reflex and has been used by several patients in whom other medicaments had failed; however, the incidence of side effects is relatively high.

Morphine and meperidine hydrochloride were used alternately with methadon in 90 patients during the course of therapy for comparison of effects. In doses of 5 to 10 mg. methadon proved to be more effective than meperidine hydrochloride in any dosage from 75 to 150 mg. When effects of 5 mg. doses of methadon were compared with 10 to 15 mg. doses of morphine, there was a slight preference for morphine. However, 7.5 and 10 mg. doses of methadon were somewhat more effective than 10 and 15 mg. doses of morphine. It was found that the analgesic effect of 10 mg. of methadon was equal to that of 15 mg. of morphine or 150 mg. of meperidine hydrochloride and in many cases was superior. This observation was also made independently by Kohlstaedt[11] and his associates, both clinically and experimentally. A summary of the comparison of methadon with morphine and meperidine is shown in table 2.

Side effects were present in 13 per cent of the patients and included nausea and vomiting, sedation, euphoria, pinpoint pupils, amnesia, dry mouth, headache and itching, as noted in table 3. When divided into groups according to dosage it was found that the incidence of side effects was 13 per cent in the 232 patients that received 5 mg. of methadon, 12 per cent in the 104 that received 7.5 mg. and 22 per cent in the 57 patients that received 10 mg. It therefore appears that 5 and 7.5 mg. doses would be most satisfactory for general use from the standpoint of freedom from toxic reactions.

Nausea and vomiting occurred chiefly in ambulatory patients who took the drug in elixir form for dysmenorrhea and headaches. Hyperdermic administration of the drug for the same conditions produced this effect infrequently. The sedation produced was generally a slight drowsiness. However, in 2 patients over 60 years of age who had complicated postoperative courses, a dose of 7.5 mg. administered every four hours caused sufficient respiratory difficulty to warrant discontinuation of the drug. The relatively low incidence of euphoria may prove to be a handicap in severely depressed patients, although it was necessary to change to morphine for this reason in only 1 patient, who proved to be a difficult nursing problem because of his depression. Pupillary changes were noted only in 3 patients in whom miosis occurred. Dizziness occurred principally in ambulatory patients. Itching was severe in two patients, but was relieved by diphenhydraminehydrochloride ("benadryl hydrochloride" N.N.R.). It was not necessary to discontinue methadon in either of these patients, and both are continuing to take the drug with no recurrence of itching even though administration of diphenhydramine has been discontinued.

---

[11] Kohlstaedt, K. G.: Personal communication to the author.

Prolonged administration of methadon at regular intervals up to twelve months did not cause associated constipation or change in bowel habits. There has also been no effect on the hemoglobin or white blood cell counts.

Development of tolerance occurred in some patients who were at first adequately relieved by a dosage of 7.5 mg. but later required 10 mg. It was also necessary to decrease the three to four hour interval between administrations to one to two hours. Most of these patients had generalized carcinomatosis, and an increasing severity of pain during the last few days of life may have been a factor.

Thus far there has been no evidence of addiction in the sense that physical dependence and withdrawal symptoms occur. Approximately 20 patients receiving methadon for two or three months had no withdrawal symptoms on abrupt discontinuation of treatment. Three patients who have been treated with the drug for one year have all been able to decrease dosage at will and to discontinue use for as long as two to six weeks without ill effects. It is believed, however, that this relatively small number of patients does not warrant a final statement concerning addiction.

It was possible to replace morphine, meperidine, "pantopon" (the total alkaloids of opium as soluble hydrochlorides) and dihydromorphinone with methadon in persons addicted to each of these drugs. The dose used and the frequency of administration depended on the amount of drug the addict was accustomed to taking. None experienced withdrawal symptoms during the time the narcotic was being withdrawn or after the termination of treatment with methadon.

Thus far contraindications to the use of this drug have not been encountered, and it has been used successfully in patients with idiosyncrasies to morphine and to meperidine. In patients with dysmenorrhea and headache the routine use of the elixir is not encouraged because of the high incidence of nausea and vomiting. In obstetric analgesia the results produced are not as satisfactory as those of meperidine.

SUMMARY

Methadon, a new synthetic analgesic, has been used clinically in various types of pain and has been compared with morphine and meperidine.

1. The drug has characteristics of both morphine and meperidine.
2. Oral use of the elixir is almost as effective as the hypodermic injection.
3. Ten mg. of methadon is as effective in relieving pain as 15 mg. of morphine or 150 mg. of meperidine.
4. Adequate or complete relief of pain occurred in 81 per cent of 400 patients.
5. Less sedation and euphoria occur with methadon than with morphine.
6. Side effects occurred in 13 per cent of patients.
7. Tolerance to the drug may develop.
8. Addiction has not been definitely established.

ENCEPHALITIS AS A CAUSATIVE FACTOR IN BEHAVIOR DISORDERS OF CHILDREN

An Analysis of Seventy-eight Cases

J. VICTOR GREENEBAUM, M.D. and
LOUIS A. LURIE, M.D.
Cincinnati

The following report is of observations made on 78 children who were referred to the Child Guidance Home because of personality difficulties and behavior disorders which were found to be causally related to a previous attack of encephalitis. At this point a word about the procedure which has been employed at the Child Guidance Home since its inception in 1920 is appropriate. Every child admitted for observation is studied from the psychobiologic point of view, which entails a knowledge and understanding of all the factors, physical, psychiatric, psychologic and sociologic, which may be involved in a given case; in other words, a study of the total situation, a procedure which has been recently emphasized by various authors.[1] It was only after the evaluation of the findings made from such an extensive study that the aforementioned relationship in the 78 cases was made. Furthermore, the excellent facilities of the institution for follow-up permitted a continuous dynamic study, which in some cases covered more than twenty-five years. This is the third report based on this continuing study, the first two being concerned with only 50 cases. Excerpts from these two papers are embodied in this report for the sake of completeness.

Among the conclusions reached as the result of the first two studies were the following:

> Encephalitis following acute virus or bacterial infections or cerebral trauma early in childhood may lead, in addition to structural cerebral changes, to behavioral and personality disturbances of such gravity as to prevent normal adjustment to life; this, despite the fact that the intellect may be unimpaired . . . . Encephalitis illustrates better than any other disease that changes in the structure of the brain may lead to changes in function. Since the encephalitic process may attack any part of the brain, the disorganization of function will correspond to the level or levels of the brain stem involved. Hence, vegetative, motor or intellectual dysfunction either alone or in combination may be present.[2]

Read before the Section on Pediatrics at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J. June 11, 1947.

From the Child Guidance Home of the Jewish Hospital.

[1] Wilson, G. and Rupp, C., Jr.: The Practice of Neurology, J. A. M. A. **133**: 509 (Feb. 22) 1947. Burlingame, C. C.: Psychiatric Sense and Nonsense, J. A. M. A. **133**: 971 (April 5) 1947.

[2] Greenebaum, J. V.; Lurie, L. A.; Leichtentritt, B., and Rosenthal, F. M.: Effects of Encephalitis Occurring During Childhood on Behavior and Personality, Ohio State M. J. **41**: 1018 (Nov.) 1945. Lurie, L. A.; Greenebaum, J. V.; Leichtentritt, B., and Rosenthal, Florence M.: Late Results Noted in Children Presenting Postencephalitic Behavior, Am. J. Psychiatry, **104**: 171 (Sept.) 1947.

These conclusions have been strengthened by the study during the past five years of the additional 28 cases reported in this series.

Of the 78 children constituting this series, 61 were boys and 17 were girls, and their ages at the time they were referred for study ranged from 4 to 19 years (fig. 1). The general proportion of boys to girls studied at the Child Guidance Home has been in the ratio of 2 to 1. In this series the ratio is almost 4½ to 1. This would appear to agree with the findings of other investigators; namely, that boys appear to be more apt to show postencephalitic type of behavior and personality changes than girls. The 78 children were taken from an unselected series of 2,700 children presenting all types of behavior disorders. This gives an incidence of 2.85 per cent.

According to figure 2, approximately 50 per cent of the patients were admitted for study during the years 1940 to 1946. The exact age of onset of the disease was unknown in 12 cases. Eighty per cent of the known cases fall in the age range of 5 months to 7 years. The remainder are scattered over the remaining 11 years (fig. 3). Both these findings correspond to those of a study of acute encephalitis made at the Children's Hospital and the Cincinnati General Hospital.[3] In a series of 113 cases of acute encephalitis observed between the years 1919 and 1947, 91, or over 80 per cent, also occurred in children under the age of 7 and 98, or 87 per cent, similarly occurred between the years 1940 and 1946.

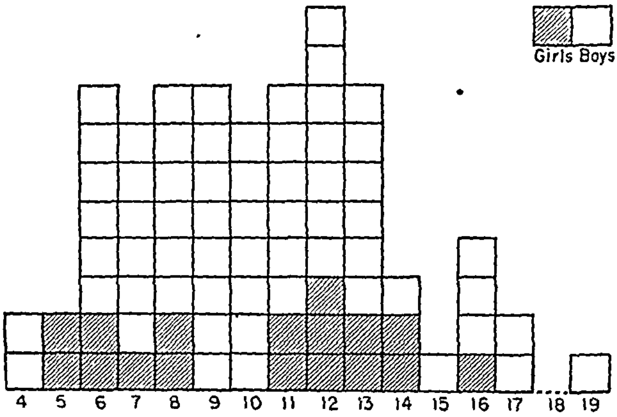


Fig. 1.—Distribution according to age and sex.

Table 1 shows the types of encephalitis as ascertained from the medical histories. From this it will be seen that the majority (37) were of the virus type, 29 of the toxic type and 12 of the traumatic type.

The age range of onset of the behavior difficulty or personality change showed a rather wide scatter with two peaks, one 3 to 4 years and the other 10 to 11 years. The age of onset of the problem was not learned in 6 cases (fig. 4).

In 64 cases the interval in years between the onset of the illness and the time of the onset of the problem was as follows: no interval or immediate onset in 40 cases; one year interval in 14 cases; two year interval in 3 cases; three year interval in 2 cases; five year interval in 2 cases; eight year interval in 2 cases, and nine year interval in 1 case. In 14 cases, the exact time of onset of the problem could not be determined.

It is interesting to note that although behavior disorders and personality changes were noted immediately after the onset of the disease in most of the cases, not one of the 78 patients was referred for study during the acute phase of the illness. All were referred at much later dates when persistent behavioral or personality difficulties made them severe problems to their parents or to their communities.

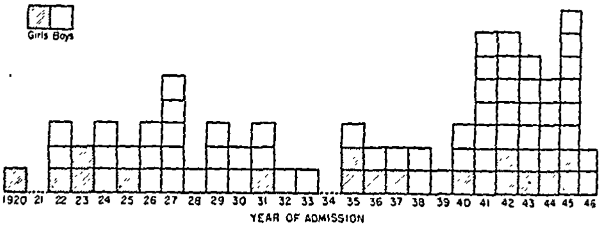


Fig. 2.—Distribution of cases of encephalitis according to years of admission to the Child Guidance Home, 1920 to 1946.

The majority of the children were referred for more than one type of behavior disorder. These ranged from such simple behavior complaints as incorrigibility, truancy and temper tantrums to the more severe types of antisocial behavior in the form of sexual misconduct, stealing and other delinquent and criminal acts. In addition some presented serious abnormal types of behavior such as extreme restlessness, delusions and hallucinations.

NEUROLOGIC AND ELECTROENCEPHALOGRAPHIC ABNORMALITIES

Neurologic abnormalities were noted in all but 21 cases. In 38 cases there were pyramidal signs; in 20 cases, extrapyramidal signs, and in 16 cases, ocular symptoms. Three children had persistent petit mal attacks and 6 suffered from grand mal seizures. Seven children showed the typical signs of parkinsonism.

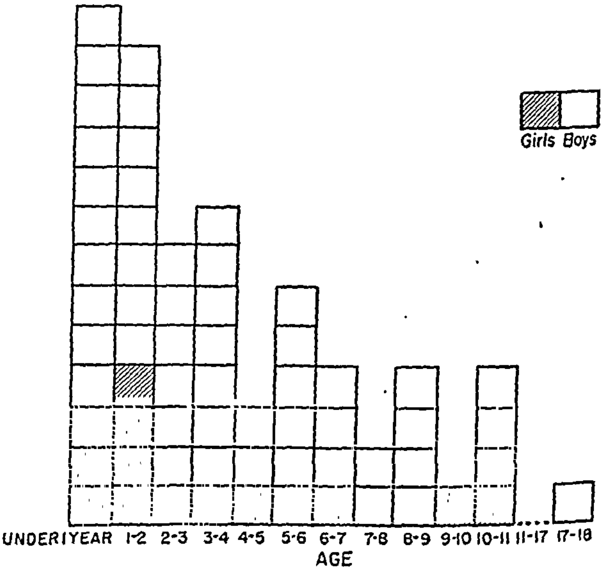


Fig. 3.—Age range of onset of disease.

---

[3] Stine, F. A.: Personal communication to the authors.

[4] These interpretations were made by Drs. G. Maltby, G. Engel and H. Lederer of the Cincinnati General Hospital.

Electroencephalograms were made in 15 cases. In 6 cases, the tracings were normal; in 8 abnormal, and in 1 case questionable. The abnormal tracings were of two types: (1) typical tracing of epilepsy and (2) tracings which showed generalized cerebral dysrhythmia characteristic of psychomotor disturbances.[4] In 3 of 4 cases with no neurologic abnormalities noted, the electroencephalographic tracings were normal. In 6 cases with observed neurologic abnormalities, the tracings were normal in 5 cases and questionable in 1 case. In the remaining 5 cases, both the neurologic findings and the electroencephalographic tracings were abnormal.

According to the results of the psychometric tests made at the time of their admission to the Child Guidance Home, 3 children in this series rated superior, 26 were of average intelligence, 17 were subaverage, 14 rated borderline and only 18 were feebleminded (table 2). Psychometric examinations were repeated in 47 cases several years after the children's dismissal from the Child Guidance Home. The intelligence quotients remained the same in 9 cases, improved in 1 case and deteriorated in 37 cases.

Table 1.—*Types of Encephalitis*

I. Virus type	
1. Polioencephalitis	5
2. Lethargic encephalitis	7
3. Influenza encephalitis	7
4. Measles encephalitis	8
5. Chickenpox encephalitis	1
6. Virus encephalitis of unknown origin	9
Total	37
II. Toxic type	
1. Diphtheritic encephalitis	2
2. Scarlet fever encephalitis	2
3. Pneumonia encephalitis	4
4. Whooping cough encephalitis	15
5. Meningoencephalitis	1
6. Other toxic conditions of unknown origin	5
Total	29
III. Traumatic type	
Total	12
	78

Table 2.—*Psychometric Tests*

Intelligence Quotients	Rating	Number
110 and above	Superior	3
90 - 110	Average	26
80 - 90	Subaverage	17
70 - 80	Borderline cases of probable mental defect	14
70 and below	Feebleminded	18

Table 3.— *Patterns of Behavior*

Type	Number
Simple behavioral	26
Psychopathic	36
Psychotic	16
Total	78

At the Child Guidance Home every child is typed on a special personality chart. Sixty-one of the children (approximately 80 per cent) in this series received a uniform personality rating which was fairly distinctive and characteristic. In general these children were suspicious, impulsive, egocentric and selfish. They exhibited violent temper tantrums and were extremely obstinate. Emotional instability, unreliability and lack of initiative were outstanding shortcomings. They lacked ability to concentrate and showed little or no self control, their behavior being extremely unpredictable.

The remaining 17 children in the series received a nondescript personality rating in which the various characteristics enumerated were not uniformly present.

Rorschach tests were made in 10 of the last of 28 cases studied. The results were for the most part in agreement with the general characterization of the postencephalitic type of personality structure as shown in the cases cited. This will be the subject of a later paper.

TYPES OF ABNORMAL BEHAVIOR

The abnormal patterns of behavior which these children exhibited can be readily divided into three groups: (1) simple behavioral disturbances; (2) psychopathic behavior, and (3) psychotic behavior. Of the 78 cases, 26 presented simple behavioral difficulties, 36 showed psychopathic type of behavior and 16 showed psychotic type of behavior (table 3).

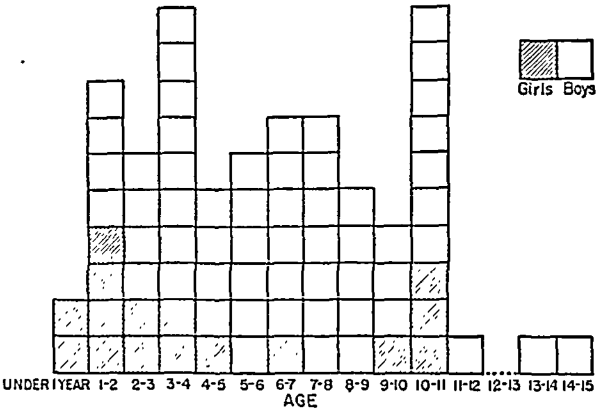


Fig. 4.—Age range of onset of problem.

Group 1.—The children who came under the simple behavioral classification were restless and hyperactive and exhibited temper tantrums. They were noisy and domineering. Aggressiveness was an outstanding symptom. Stealing, lying and running away were frequent occurrences. Enuresis was often present. These children were extremely difficult to control.

Group 2.—Of those who presented psychopathic types of behavior, some were phlegmatic and apathetic and apparently indifferent to what was going on around them. They gave the impression of being dull intellectually, even though their intelligence quotients, as shown on the psychometric tests, were normal or above normal. They were asocial and made little effort to enter into group activities. They concentrated poorly and were either unable or unwilling to carry out instructions. The majority of this group, however, were extremely restless and hyperactive, and lacked ability to concentrate.

In many instances, they were vicious, cruel and apparently deliberately abusive to other children. The unpredictability of their behavior was outstanding. Night terrors, sleep walking, breathing difficulties, food fads and habit tics were frequent complicating symptoms.

Group 3.—Those children who were classified as psychotic showed severe disorganization of cerebral function. They were careless of their personal appearance and were slovenly in all their habits. Moodiness, crying spells and irrelevant talk were often noted. Outbursts of screaming and causeless laughter were also often present. Occasionally hallucinatory phenomena were in evidence. These children had no insight whatsoever into their condition. It was impossible to control them, and they became violent when thwarted. Some refused to wash, bathe or change their clothes, often insisting on going to bed in the clothes which they had worn during the day. Rapport with them was impossible. Their behavior was comparable in many respects to that of the hypomanic. Some of these cases had been diagnosed as schizophrenia.

Case reports illustrating each of these 3 groups are appended.

As has been stated, the children in this study have been followed for periods ranging from three to twenty-six years, the majority having been followed for more than fifteen years. Their present age range is from 10 to 43 years.

COMPARISON OF ADJUSTED AND UNADJUSTED GROUPS

In the great majority of the cases, various types of social and medical therapy have been tried in order to bring about a social adjustment or at least an amelioration of the symptoms. The results have been highly disappointing. Only 12 of the 78 patients are at present adjusted. In the adjusted group there were 9 boys and 3 girls. Eight had had the virus type, 3 the toxic and 1 the traumatic type of encephalitis.

Personality Chart *

1.	Temperament				
	Trustful	A	B	*C*	Suspicious
	Impulsive	*A*	B	C	Phlegmatic
	Sanguine	A	*B*	C	Depressed
	Non-egocentric	A	B	*C*	Egocentric
	Generous	A	B	*C*	Selfish
2.	Temper				
	Placid	A	B	*C*	Violent
3.	Tractable	A	B	*C*	Obstinate
	Impressionable	A	B	*C*	Unimpressionable
4.	Intellectually Honest	A	B	C	Intellectually Dishonest
5.	Mentally Alert	A	B	C	Mentally Dull
6.	Emotionally Stable	A	B	*C*	Emotionally Unstable
7.	Character traits				
	Reliable	A	B	*C*	Unreliable
	Original	A	B	*C*	Imitative
	Leader	A	B	*C*	Follower
	Concentration	A	B	*C*	Lack of concentration
	Self-control	A	B	*C*	Lack of self-control

* For convenience in typesetting the letters which might be circled in pen and ink in an actual form are set in italics.

Comparison of the adjusted and unadjusted groups reveals some rather significant differences. In the unadjusted group (66) there is a preponderance of the toxic and traumatic forms of encephalitis. Severe neurologic sequelae were also more prevalent, convulsive seizures having developed in 8 of the children in this group in contrast to but 1 in the adjusted group.

A noticeable and significant difference between the two groups was the much greater number of children in the unadjusted group who showed intellectual deterioration; specifically, 34 (51 per cent) in the unadjusted group compared with only 2 (16 per cent) in the adjusted group.

Another significant difference was the proportionately larger number of children in the unadjusted group who have the typical personality structure characteristic of the postencephalitic. There were 54 (82 per cent) in the unadjusted group in contrast to 7 (58 per cent) in the adjusted group.

There was also some difference in the two groups with respect to types or patterns of behavior. The number of children exhibiting psychopathic and psychotic behavior was far greater in the unadjusted group, 70 per cent compared to 58 per cent in the adjusted group. This was especially noticeable in the number showing psychotic reactions.

These differences, therefore, furnish a possible prognostic basis for the determination of the ability of the child showing postencephalitic behavior to adjust socially.

COMMENT

Our series of 78 cases was taken from a group of 2,700 children showing all types of behavior disorders, which gives an incidence of approximately 2.9 per cent. This is a significant percentage. From our experience with postencephalitic type of behavior we feel that the disease, as a complication of acute infectious and contagious diseases of children, is frequently overlooked. One of the reasons for this may be the fact that the neurologic examination often fails to disclose any abnormality. Another reason, and probably a more potent one, is the fact that in the great majority of cases there is no history of an attack of encephalitis. It is only when the medical history of the child as well as his behavioral reactions are carefully scrutinized and evaluated from the standpoint of a possible encephalitic episode, complicating an acute infectious or contagious disease occurring in the first decade of life, that the condition becomes apparent. We are in agreement with Bender[5] that "the diagnostic criteria for encephalopathic behavior disorders are now considerable. Even without the history of a specific etiological factor or evidence of the specific (neuro)pathology, the diagnostic methods which may be applied to fields of behavior are sufficient to establish a diagnosis."

One must consider the possibility of postencephalitic type of behavior when confronted with a child who is extremely hyperactive, restless and destructive, has a short attention span, is highly distractible, lacks self control and whose actions are extremely unpredictable.

---

[5] Bender, quoted by Neal, J. B.: Encephalitis: A Clinical Study, New York, Grune & Stratton, Inc., 1942, pp. 379-380.

Furthermore, the longer a case is followed, the more characteristic the clinical picture becomes. Often where the condition was originally only suspected, reexamination later easily established the correctness of the tentative diagnosis. As time goes on the pattern of behavior and characteristic personality changes become more clearcut and pathognomonic. The first 2 cases cited in this report illustrate this point clearly. If these facts are borne in mind, many more cases of uncorrectable behavior disorders and irreversible personality changes will be found to fall into this category.

SUMMARY AND CONCLUSIONS

A report on the study of 78 children presenting behavior disorders and personality changes following an attack of encephalitis is presented.

The cases were followed for periods ranging from four to twenty-six years, the majority having been followed for more than fifteen years.

Of the 78 children constituting this series, 61 were boys and 17 were girls, a ratio of more than 4½ to 1. This tends to bear out the findings of other investigators that boys are more apt to show postencephalitic type of behavior and personality changes than girls.

The 78 children comprising this series were taken from an unselected series of 2,700 children studied as inpatients at the Child Guidance Home, who presented all types of behavior disorders. This represents an incidence of approximately 2.9 per cent and indicates that the condition is by no means rare. The diagnosis will be made with even greater frequency once it is recognized that it can be made on the basis of the characteristic behavior reactions and personality changes even without a specific history of a previous attack of encephalitis or the presence of neuropathologic changes.

The age range of onset was in the first decade of life in 60 of the cases, 43 occurring before the age of 5 years. Furthermore, the younger the patient when affected by the disease, the greater the likelihood of psychiatric sequelae.

The types of encephalitis as ascertained from the medical histories showed that the majority (37) were of the virus type, 29 of the toxic type and 12 of the traumatic type.

In the great majority of the cases the behavior difficulty or personality change was noted immediately after the attack of encephalitis.

The majority of the children were referred for multiple behavior problems. These covered the usual range of problems ordinarily studied at child guidance clinics.

The abnormal patterns of behavior which these children exhibited could be readily divided into three groups: (1) simple behavioral disturbances, (2) psychopathic behavior and (3) psychotic behavior.

When these children were first studied, 14 were found to be feebleminded and 7 rated borderline. The remainder (57) were either of average or of superior intelligence.

Forty-seven of the children were retested several years later. The intelligence quotients remained the same in 9 cases, improved in 1 case and deteriorated in 37 cases. The frequency of intellectual deterioration is worthy of note as it seems to refute the prevailing belief that the most severe and lasting damage is in the emotional sphere in contrast to the preservation of the intellect.

Neurologic abnormalities were noted in all but 22 cases. These were of both the pyramidal and the extrapyramidal type. Ocular symptoms were present in 16 cases. Three children had petit mal attacks and six suffered from grand mal seizures. Seven children showed symptoms of parkinsonism.

Electroencephalograms were made in 15 cases, of which 8 were abnormal. The abnormal tracings were of two types: (1) tracings typical of epilepsy and (2) tracings showing generalized cerebral dysrhythmia, characteristic of psychomotor disturbances.

Sixty-one (80 per cent) of the children in this series had a uniform and characteristic personality makeup. In general, lack of inhibition, restlessness, impulsiveness, extreme distractibility and unpredictibility of behavior were the dominant personality traits.

The prognosis from the standpoint of social adjustment is poor. Only 12 children in this series of 78 have made a fair social adjustment; this despite the application in the majority of cases of the best available medical, psychiatric and social therapeutic technics.

The failure of social therapy and psychotherapy in these cases cannot be attributed to faulty social or psychiatric technics. Rather, such failure indicates that the problem of the child presenting postencephalitic behavior disorders or personality changes is not solely one of psychopathology and psychodynamics. The psychopathologic symptoms are primarily the results of the neuropathologic changes, and it is our present inability to correct the latter which accounts for the failure of treatment. These cases illustrate pointedly the relation of structure to function in human behavior. For this reason, it is essential for all who are interested in behavior disorders of children, particularly pediatricians, to use the classic psychobiologic approach when studying problem children.

REPORTS OF CASES

CASE 1.—Billy, aged 10, was admitted to the Child Guidance Home for the first time in June 1941 because he was unable to adjust either at home or at school. He felt that every one picked on him, and in turn his classmates complained that he hit, pinched and bit them.

According to the social history, the father and mother were incompatible. The father drank heavily and consorted with other women. The mother appeared to be a rather stable person, who considered herself responsible for the support of her family because of her husband's incompetence. Her attitude toward the child was one of overprotectiveness, and toward her husband one of resigned indifference. She worked during the day and the father worked at night. Consequently, the boy had little supervision and little association with his parents. The father felt that Billy's problems were entirely due to the family situation. He stated that he, the father, was the only one to whom the boy had ever been really attached. The constant friction in the home made for a tense, unhappy situation. The boy received neither love nor affection from his parents and felt insecure. Of significance in the boy's medical history was the fact that he had had a severe attack of measles early in infancy which was complicated by bilateral otitis media.

At the Child Guidance Home the physical and neurologic examinations disclosed no significant abnormality. The boy had an intelligence quotient of 121. He was hyperactive and restless, and concentrated poorly. He was unable to get along with the other children and did not hesitate to throw rocks at them without any apparent cause. He was a poor sport and a coward. The children heartily disliked him and kept out of his way as much as possible. In psychiatric interviews the boy talked quite freely. He told about his home situation and said that he had been moved around a great deal. He admitted that he could not get along with children at school and said that sometimes they called him "sissy." This was because he would cry and run away if he found that he was getting the worst of any situation. He thought it might help if he were bigger and stronger and better able to stand up for himself. He stated that he did not want to live with either one of his parents alone. What he really wanted was to have a normal home with both parents present. He was well aware of the friction between his parents and was unhappy about this. The boy appeared to have fair insight into his condition. His lack of security and feeling of inferiority were evident.

The diagnosis at this time was that most of Billy's difficulties were due to faulty parent-child relationships. It was recommended that the boy be placed in a good boarding home where he would receive the love and affection of which he had been deprived, and where he could develop a feeling of security. The recommendation was carried out. However, despite intensive social therapy, the boy did not adjust in this and in other homes in which he was subsequently placed. He was then placed in a Children's Home, where he also failed to adjust. The Children's Home asked that the boy be readmitted to the Child Guidance Home for further study. The physical and neurologic findings at this time were approximately the same as they had been at the time of his previous study. His intelligence quotient was still 121 and his social quotient 103. Billy's behavior reactions followed the same pattern as they had on previous study except that they were more extreme. He was provocative, restless and aggressive, had a short attention span, was undependable, destructive and slovenly about his person. The boy stole and tried to lie out of every situation. A Rorschach test made for the first time revealed strong evidence of cerebral damage. His rating on the personality chart was characteristic of the postencephalitic. The electroencephalographic tracing, however, was normal. On the basis of the present observations and the medical history of a severe attack of measles early in infancy complicated by a bilateral otitis media, it was felt that the boy was presenting a postencephalitic type of behavior. The unwholesome home situation and the faulty parent-child relationships were also contributory but only in the sense that they had determined the trend or direction of the antisocial behavior. A recommendation for special institutional placement was made, but this could not be carried out as there was none available. Billy was therefore returned to Children's Home and placed in a cottage with older boys. There he again presented so many difficulties that the Children's Home refused to keep him. The only other available placement was a school for delinquent boys, where he was placed. There he proved to be most difficult. He ran away repeatedly, and after a short time had to be taken home by his mother. Then the neighbors began to complain and reported that he had stolen, pulled the main light switches in apartment buildings, and rung apartment doorbells late at night. They became so upset by his behavior that they went to court, demanding that drastic measures be taken. His teachers also stated that he was the worst problem they had ever encountered. In court, the mother promised to send the boy to a military school. After a brief stay there, the military school refused to keep him. The child was again brought before the court, and at the court's request he was readmitted once more to the Child Guidance Home for further study. At this time the neurologic examination showed some positive findings in the form of right internal strabismus with bilateral nystagmus, general muscle weakness with beginning atrophy of the muscles of the right forearm, and absent abdominal reflexes. The boy's intelligence quotient had dropped to 108. His behavior at the Home was extremely belligerent and he was abusive to the other children. He ran away several times and proved to be a nonconformist in every way. Psychiatric interviews were not very productive, as it was difficult to make satisfactory rapport with him. He bragged about his escapades and stated constantly that he had done nothing wrong and that every one else was to blame for his difficulties. Although he had been in many serious difficulties he minimized these and refused to admit that he had committed any wrong.

All who observed the boy felt that he was potentially dangerous and that in order to protect society it was necessary to institutionalize him. The only available placement was a hospital for the mentally ill, where he was admitted late in 1945 at the age of 14.

Comment.—This case illustrates the insidious nature of the disease in a boy whose behavioral difficulties at first appeared to be due entirely to faulty personal and interpersonal family relationships. However, on repeated examinations made over a period of years, it became apparent that his continued antisocial behavior was on an organic basis. This was first suggested by the interpretation of the Rorschach test. Furthermore, despite the fact that there was no history of an attack of encephalitis, the history of a severe attack of measles complicated by bilateral otitis media plus neuropathologic findings and the distinctive pattern of the boy's behavioral reactions warranted the diagnosis of postencephalitic behavior disorder. Admittedly, he is not properly placed in a hospital for the insane, as he never manifested any psychotic symptoms but merely uncontrollable antisocial behavior.

CASE 2.—William, a white boy aged 13, was admitted to the Child Guidance Home in January 1930. The reason for his referral was that he had been involved in petty thefts and truancy for a long time. The social history revealed that his delivery had been instrumental, the mother dying in childbirth. The father was an alcoholic addict, and was killed by a train when William was 2 years of age. At first he was cared for by maternal aunts, and later he was boarded out. There was little material available regarding his early developmental history. It was noted, however, that the boy had suffered from various acute infectious diseases in infancy and early childhood with chronic involvement of the middle ear.

The physical examination made at the Child Guidance Home revealed no significant abnormality except for bilateral otitis media, with a loss of hearing of approximately 50 per cent in both ears. In the neurologic examination there were many positive findings in the form of unequal pupils and pyramidal tract signs. His intelligence quotient was 109.

At the Home, William proved to be a friendly boy who was liked by every one because of his frankness and willingness to be of service. It was noted that he was emotionally unstable, was socially immature and showed a strong feeling of insecurity. He was unable to carry out his good resolutions, although he apparently tried hard. He composed well, was a good musician and a leader in the club activities. He loved the Child Guidance Home and begged to be allowed to remain permanently. The boy talked freely and willingly in psychiatric interviews. He made good rapport with the psychiatrist and social workers. He appeared to have some insight into his condition. He admitted that he was weak willed, had many fears and always needed some one on whom he could lean. New experiences particularly frightened him. At this time it was felt that despite the fact that the boy was suffering from an organic involvement of the central nervous system of unknown origin, the unfortunate early conditioning had made the boy antisocial. It was therefore recommended that he be placed in a school where he would be under strict disciplinary care and at the same time would receive psychotherapy. This recommendation was not carried out, and he remained with the aunt with whom he had been living. However, his truancy from school became such a problem that, at the insistence of the Attendance Department, the aunt placed him in a private military school where he remained for some time. Returning to his aunt for his summer vacation, he immediately got into trouble. He was charged with stealing, attacking a 5 year old girl, and driving a stolen car to a far distant city. He was then cited to court. Before he could be tried, the aunt returned him to the military school, but he ran away almost immediately, returning to Cincinnati, where he lived at several different hotels, giving fictitious names and leaving the hotels without paying. Again the boy was brought into court and referred to the Child Guidance Home for another period of observation.

Here it was noted that with the exception of the chronic otitis media, which had become worse, the results of all the physical examinations were essentially the same as on the first examination. The boy was still friendly and gregarious. However, he concentrated poorly, was unreliable and irresponsible. In psychiatric interviews, the boy's extreme immaturity was apparent; likewise, his poor concentration and ability to follow through. He admitted being weak willed and said that he readily followed any leader and so became involved in trouble. He stated that he was more restless than he had ever been and just wanted to run away from everything. Everybody and everything irritated him and he felt at times that he could not control himself. In one interview he said, "I'm afraid of the beginning of everything and afraid I can't do it. I like people after I'm with them and I get along with them. I'm unhappy. I don't like being on my own and I always get into trouble where I am." At this time the diagnosis was that the boy's behavior problems were due in part to an organic brain involvement probably as a result of some acute infectious disease, which had been complicated with encephalitis. The recommendation for custodial care in a special kind of institution, equipped to care for cases of that type for life, was recommended.

Again the recommendation was not carried out. Shortly thereafter, word was received that the boy had been arrested in Los Angeles, where he was committed to the Preston State School. Later in the year, William returned to Cincinnati. Following this, his aunt again placed him in a military school from which he promptly ran away.

William's history from that time on was a repetition of what had gone on before. He refused to stay in any one place, held jobs for just a few days, incurred debts, stole and burglarized. During the succeeding years, he was in the city workhouse, the boys' industrial school (state reformatory) and federal reformatory, where he is at present.

Comment.—When first seen at the age of 13, the diagnosis of postencephalitic behavior disturbance was not made in spite of neurologic findings and the presence of a chronic discharging ear. However, subsequent observation of the boy's behavior proved that the organic brain changes, encephalitic in nature, were basically responsible for his intractable and irreversible psychopathic behavior. Obviously incarceration in a reformatory is not the proper placement for a sick boy.

Case 3.—Roy was admitted to the Child Guidance Home in February 1927, at the age of 13 years. It was stated that the boy had been a behavior problem for two and one-half years. The social history revealed that the father had been in poor health for many years and that the mother was nervous because of worry over her son's conduct. She helped support the family by conducting a small notion store. They had been independent until just recently, when they were forced to ask for financial assistance from a local social agency. There were 4 siblings, 3 boys and 1 girl, all in good health and all doing well at school. They presented no behavior problems. The developmental history showed that Roy's birth and early development had been normal. He had had chickenpox, measles and whooping cough. The ages at which he contracted these were not stated. The boy had an attack of acute epidemic encephalitis at 9 years of age.

At the Child Guidance Home the physical examination disclosed no significant abnormality, but there were positive neurologic findings in the form of pyramidal tract changes. The boy had an intelligence quotient of 122. From the moment he entered the Child Guidance Home it was noted that he was extremely difficult to control. He was impulsive, egocentric, depressed and suspicious. He exhibited violent temper tantrums during which he was unmanageable. His emotional instability was pronounced. The children obviously annoyed him and he did not hesitate to bite pieces out of their arms and legs when he became angry. There was no one with whom he could get along. He was extremely irritable and a serious sex problem. He ran away five and six times a day. There was no way of appealing to him or obtaining his cooperation. He did as he pleased and did not hesitate to destroy or injure anything or any one in his path. He had unusual physical strength and on one occasion tore a tie off of one of the children. In forcibly removing the tie he almost choked the boy. On the other hand, there were times when Roy appeared to be tractable and affectionate. At such times he would put his arms around any one at the Home and act in a tender and loving manner, but a moment later his mood would change and he would try to injure the object of his former affection. Such bizarre behavior as plucking hair from a child's head or sticking another with pins was of frequent occurrence. He could not be left alone with the other children, and because of his unusual physical strength no adult person at the Home was able to handle him alone. The children were in mortal terror of him. In psychiatric interviews, contacts were on an extremely superficial level because of the boy's apprehensiveness, antagonism and unwillingness or inability to respond. Attempts to reassure him and to get him into a more responsive frame of mind were unsuccessful. In most of the interviews he refused to answer at all and would sit with his head in his lap. Occasionally he spoke about his family. He was bothered about the poor economic conditions in his home. He felt that his mother did not have enough money to take care of the family properly. He showed many fears, particularly of the laboratory tests. There was no evidence of delusions or hallucinations.

It was felt that the boy had had an attack of lethargic encephalitis with resultant psychiatric disturbances, principally in the sphere of volition. It was recommended that he be institutionalized. The parents were both ununderstanding and uncooperative, and made no attempt to carry out the recommendation. A year later the mother reported that the boy had been committed to the boys' industrial school (a state correctional institution) as a result of conviction on a charge of assault and battery. The boy's record at the industrial school was bad. He did not adjust in any way. He was paroled in March 1929 and returned to his home. A short time later he was arrested and sent to a state hospital for the mentally ill, where the same diagnosis as that given at the Child Guidance Home was made. Later in the year, another report from the hospital stated that he had become much more difficult, was quarreling with the other patients, attacking them and threatening every one with assault. In October 1931, the state hospital reported that Roy was home on trial visit. He was attending classes in high school. However, after being home for eight months, he had to be returned to the hospital because the family could not control him. Each year Roy's behavior has become more difficult. In January 1946, at the age of 32, he was still in the state hospital, where it was reported that his behavior was both bizarre and unpredictable. His intelligence quotient was still 122.

Comment.—This case illustrates the psychotic sequelae of lethargic encephalitis. In this instance there has been no intellectual deterioration even though the condition has existed approximately twenty years.

ABSTRACT OF DISCUSSION

Dr. Charles Bradley, East Providence, R. I.: The essayists' study originates from a Child Guidance Center fully staffed for studies of this nature. Their observations form a record of behavior patterns following encephalitis in children whom they had not known before the infection. Nevertheless, they are able to discern clearly certain personality characteristics varying in intensity without history of such previous behavior. My observations in connection with the Child Guidance Clinic and with a large contagious diseases hospital are similar to those of the essayists, and I am much disturbed because of inadequate facilities available for the care of hopelessly damaged children, as well as by the dearth of well trained child psychiatrists. The pediatrician is not equipped by training or mode of practice to undertake similar studies. However, to him should fall the task of early diagnosis. He is familiar with the personality patterns of his little patients and can be alert to changes following infection. He needs to be familiar with the total environment in which each of his patients lives and to have an understanding of adverse environmental pressures to which each may be subjected. Such knowledge would help immeasurably in differentiating between emotional and infectional trauma. But, more important, he needs to give attention to the possibilities of preventive measures. A total number of virus and bacterial infections seen by the pediatrician is great, and though only a small percentage contract postinfectious encephalitis, the number is not inconsiderable. I am firmly convinced that the institution of certain simple measures in management of the child with severe infection can be helpful as prophylaxis. I consider very important (1) bed rest at onset of infection, particularly for the hypertonic child; (2) at least three days of quiet bed rest after the afebrile period in severe infections has been reached, and (3) careful attention to the mental hygiene aspects of the care of the sick child, particularly the avoidance of traumatic experiences as exemplified by the administration of questionable therapy involving violent restraint of the patient.

Dr. Louis A. Lurie, Cincinnati: There is considerable diversity of opinion regarding the genesis of the psychopathologic train of events seen in postencephalitic types of behavior. According to some, the encephalitis merely brings out character defects and abnormal personality traits that were already present but had been dormant. According to others—and we agree with them—encephalitis does not necessarily accentuate the premorbid personality. As expressed by one investigator, "The tragic feature of encephalitis is personality change, not personality exaggeration." This belief seems to be borne out by the fact that the psychopathologic after-effects of encephalitis are much more pronounced in patients affected early in life. Furthermore, the study reported in this paper shows that the younger the patient affected by the disease, the greater the likelihood of the psychiatric sequelae. The same is true in whooping cough, and I think the reason for that is that the same pathologic changes occur in the brain in cases of encephalitis as they do in whooping cough; namely, petechial hemorrhages. Today the major trend in psychiatry is to explain human behavior in terms of freudian psychology. The tendency to minimize and even to ignore the role of somatic factors in the causation of abnormal behavior has proceeded to the point where even psychiatric social workers feel competent to diagnose and treat behavior disorders of children and adults without the aid of the physician or the psychiatrist. A thorough medical evaluation of the patient is not deemed essential. This attitude on the part of psychiatric social workers has been strengthened by the statements of some psychoanalysts that the usual setup of workers at child guidance clinics, consisting of a psychiatrist, psychologist and psychiatric social worker, can be dispensed with. The claim has been made that any person trained in psychoanalytic concepts and hence psychodynamically oriented is qualified to diagnose and to treat personality disturbances and behavior disorders. Such a trend must not be condoned. As physicians, we must recognize that we cannot separate function from structure. Genetically, function follows structure. The development of the psyche or mind has been coincident and coextensive with the increase in the structural complexity of the cerebral hemispheres; hence, anything that affects the structural integrity of the cortex must necessarily disturb the normal functioning of the psyche or the mind, and hence alter behavior. Encephalitis, as emphasized in this paper, illustrates this point exceptionally well.

PAPAVERINE IN CEREBRAL ANGIOSPASM (VASCULAR ENCEPHALOPATHY)

HENRY I. RUSSEK, M. D.
Director of Cardiovascular Research
and
BURTON L. ZOHMAN, M. D.
Consultant Cardiologist, Cardiovascular Division,
United States Marine Hospital
Staten Island, N. Y.

Papaverine relaxes many smooth muscles of the body, especially those of the blood vessels. Its therapeutic value has been demonstrated in arterial embolism, in which the drug increases collateral circulation by acting on reflexly constricted vascular channels. Similar therapeutic effect has recently been claimed from its use in angina pectoris and myocardial infarction. Indeed, the experimental and clinical observations of Katz[1] would indicate that papaverine enhances coronary blood flow in these disease states.

The action of papaverine on disturbances of the cerebral circulation has not thus far been reported. Embolism of the cerebral vessels would appear to be an indication for its use. The possible benefit from this drug in the therapy of angiospastic cerebral phenomena commonly observed in the course of hypertensive disease, acute glomerulonephritis, eclampsia gravidarum and lead poisoning has attracted the interest of the writers.

The cerebral manifestations encountered in these conditions vary widely. In the cases of milder disease transient aphasia or hemiplegia may be the only symptom. Headache and vomiting are common. Sensory disturbances consist of numbness, tingling or "crawling" sensations, localized or involving one side of the body, paresthesias of taste and smell as well as sudden temporary loss of vision in one or both eyes. Motor manifestations in the form of clonic convulsive seizures, either localized to one extremity or one side or generalized, are not infrequent. The more severe episodes are generally followed by an interval of clouded consciousness or coma from which the patient recovers in a few hours without recollection of the incident. The transient character of the seizures as well as the rapid clinical recovery following each of them strongly suggests that focal cerebral angiospasm initiates the episodes.

The purpose of this paper, therefore, is to record the results obtained with papaverine hydrochloride in the treatment of encephalopathy associated with hypertensive disease and cerebral vascular disease without hypertension. Although the series studied comprised 46 patients a review of several typical

---

Published with permission of the Surgeon General, United States Public Health Service, Washington, D. C.

[1] Elek, S. R., and Katz, L. N.: Some Clinical Uses of Papaverine in Heart Disease, J.A.M.A. 120: 434 (Oct. 10) 1942.

case records will demonstrate the uniform results obtained.

REPORT OF CASES

CASE 1.—A white Italian woman aged 49 years complained of recurrent attacks of weakness of the left side of the body over a period of three years. Each attack would start with a "creeping" sensation in the left hand and forearm followed by spreading numbness and weakness of the entire left side of the body. Within recent months the patient suffered from five to twenty such attacks daily. The duration of the attack was from several minutes to one hour. Previous treatment with various sedatives failed to control the clinical symptoms. The patient was told that she had epilepsy and was given a trial on diphenylhydantoin sodium without benefit.

Physical examination revealed normal eye grounds. The blood pressure was 112 systolic and 70 diastolic. There was no enlargement of the heart, and no murmurs. There was a normal sinus rhythm with a ventricular rate of 78 per minute. Superficial and deep reflexes were normal. Examination during a typical attack revealed a left hemiparesis and a blood pressure of 120 systolic and 78 diastolic.

The patient was treated with 2 grains (0.12 Gm.) of papaverine hydrochloride and ¼ grain (15 mg.) of phenobarbital orally four times daily. Two mild attacks occurred on the first day of treatment. The patient became symptom free from the second day on. After four weeks of such treatment the dosage was reduced to 1½ grains (0.1 Gm.) of papaverine twice a day. For the ensuing week the patient experienced one or two mild seizures daily. The dosage was increased to the original level, and the patient has remained completely well during the past four months.

CASE 2.—A white Russian woman aged 76 years suffered from recurrent attacks of aphasia and clouded consciousness over a period of twelve years. In recent weeks she had had two to five attacks daily, each lasting from five to fifteen minutes. She had become bedridden during the previous five months because of fear of the seizures and weakness induced by protein deprivation prescribed by her physician. She drank ten to twelve cups of coffee per day.

Physical examination revealed an emaciated elderly white woman. The eye grounds revealed the changes of arteriosclerotic retinopathy. The blood pressure was 190 systolic and 82 diastolic. There was no enlargement of the heart. A soft systolic murmur was heard at the apex. There was a normal sinus rhythm with a rate of 80 per minute. There was no evidence of decompensation. Reflexes were normal.

Treatment consisted of 1½ grains of papaverine hydrochloride with ¼ grain phenobarbital orally three times daily. On this dosage the attacks continued but were diminished in frequency and severity. The patient was placed on a normal diet with coffee excluded. The dosage of papaverine was increased to 3 grains (0.2 Gm.) four times a day. There was complete cessation of attacks. The patient is ambulatory and has led a normal existence for the past year, during which time papaverine has been continued. An attempt to reduce the dosage of the drug on one occasion resulted in recurrence of attacks.

CASE 3.—A white Norwegian woman aged 72 years complained of frequent spells consisting of black circles in front of the eyes and tingling and numbness of the left arm and leg followed by weakness of the entire left side of the body. These symptoms recurred frequently over a period of four months. Each attack lasted several minutes to an hour. Within recent weeks she had had approximately ten attacks daily. Sedatives and hot towels to the head previously employed failed to control these episodes. Patient had had coronary thrombosis three years previously but had enjoyed fair health until the onset of the present symptoms.

Physical examination revealed arteriosclerotic retinopathy with grade 1 hypertensive changes. The blood pressure was 180 systolic and 88 diastolic. There was no enlargement of the heart; no murmurs were heard. There was a normal sinus rhythm and a rate of 84 per minute. There was thickening and tortuosity of the radial vessels. Reflexes were normal.

Treatment consisted of 2 grains of papaverine hydrochloride with ¼ grain phenobarbital three times a day. The recurrence of mild attacks necessitated an increase of papaverine to 4 grains (0.25 Gm.) four times daily, on which dosage the patient became symptom free. After a period of four months the dosage of papaverine was reduced to 4½ grains (0.28 Gm.) daily, and the patient has continued to remain asymptomatic for the past two months.

CASE 4.—A white Italian man aged 38 years with advanced malignant hypertension suffered from recurrent blindness and acute mania. His attacks recurred three to four times weekly, lasting one hour and followed by a period of coma from which he recovered without recollection of the incident. Enormous doses of sedatives failed to control or prevent these seizures.

Physical examination revealed grade 4 hypertensive retinopathy. The heart was moderately enlarged to the left. There was a systolic murmur at the apex. The aortic second sound was markedly accentuated. There was a normal sinus rhythm with a ventricular rate of 80 per minute. The blood pressure was 286 systolic and 160 diastolic. Reflexes were essentially normal.

The patient was given 3 grains of papaverine hydrochloride and ½ grain (30 mg.) phenobarbital orally four times daily. The patient worked for two weeks at his usual occupation without a single seizure. Attacks recurred after this period and necessitated hospitalization. Sympathectomy was performed without material reduction in the blood pressure. Cerebral episodes continued to recur during the postoperative period. The patient was then placed on 15 grains (1 Gm.) of papaverine daily and has suffered no attacks for a period of two months.

COMMENT

Our studies indicate that papaverine hydrochloride is of considerable value in the prevention of attacks of vascular encephalopathy. In most instances continuous administration of the drug resulted in complete cessation of symptoms. Papaverine abolished frequently recurring cerebral episodes in 2 patients who had suffered from this syndrome for a number of years. The drug was found effective in decreasing the severity and frequency of seizures even in some patients with advanced malignant hypertension.

Dosage varies considerably with each case. In some instances a daily dosage of 4½ grains was adequate to prevent the attacks. In others, symptoms continued to recur until 12 to 18 grains (0.75 to 1.2 Gm.) per day was administered. In a few cases the dosage has been considerably reduced without recurrence of symptoms. One case has required 9 grains (0.6 Gm.) daily for over a year to maintain freedom from attacks.

The toxicity of papaverine is low, so that the ingestion of ten times its therapeutic dose would not result in untoward effects.[2] It is devoid of narcotic action and causes neither sleep nor analgesia.

Although barbiturates failed to control the cerebral episodes in our cases, the combination of phenobarbital (grains ¼ to ½) with papaverine appeared to reduce the dosage of the latter required for clinical improvement. Conversely, the use of coffee or tea in excess seemed to vitiate the effectiveness of papaverine.

The cases studied do not substantiate the view that this cerebral syndrome is correlated with arterial hypertension.[3] Indeed, observation of several patients with cerebral vascular disease without hypertension disclosed normal blood pressure levels during typical seizures. Furthermore, in none of these cases was cardiac insufficiency a possible factor in the pathogenesis of the syndrome. It would appear, therefore, that vascular encephalopathy is a more appropriate designation than hypertensive encephalopathy for this cerebral symptom-complex.

---

[2] Goodman, L. S., and Gilman, A.: The Pharmacological Basis of Therapeutics, New York, the Macmillan Company, 1941.

[3] Fishberg, A. M.: Hypertension and Nephritis, Philadelphia, Lea & Febiger, 1939.

The favorable response in our cases to papaverine suggests the possibility of comparable benefit from this drug in the encephalopathic episodes of acute glomerulonephritis, eclampsia gravidarum and lead poisoning. Similar response in these conditions would add further indirect evidence that the cerebral syndrome is initiated by angiospastic phenomena.

SUMMARY AND CONCLUSIONS

Papaverine hydrochloride was administered orally to 46 patients suffering from cerebral episodes associated with hypertensive disease or cerebral vascular disease without hypertension. The drug was found to be highly effective in preventing the recurrence of seizures. The amount of papaverine necessary for optimum results was frequently three to four times the commonly accepted therapeutic dosage. In some instances 12 to 18 grains per day was required for the control of symptoms. The favorable response in our cases to papaverine is further indirect evidence that the cerebral episodes are initiated by angiospastic phenomena. Vascular encephalopathy may occur in the absence of arterial hypertension. Several illustrative cases have been reported. Trial of this drug in the encephalopathic seizures of acute glomerulonephritis, eclampsia gravidarum and lead poisoning is indicated.

ADDENDUM

Since this paper was submitted for publication 3 cases of vascular encephalopathy associated with acute glomerulonephritis were controlled successfully by large oral doses of papaverine. In addition, 2 cases of retinal angiospasm complicating hypertensive disease responded rapidly to the intravenous administration of this drug. Papaverine in adequate oral dosage was similarly effective in the treatment of a large number of cases of "hypertensive headache."

Infectious Diseases.—Of the many triumphs over human disease for which modern medicine deserves credit, perhaps none is more notable than the power to control the activity of the micro-organisms that cause infectious disease. From the time of the discovery by Pasteur of the essential relationship of bacteria to certain diseases of mankind, progress in the direction of prevention and cure has been rapid and continuous. In fact, many of the destructive plagues that in past ages brought death and disability to vast populations of the world have now entirely disappeared or become inconsequential wherever modern medical technics are understood and efficiently applied. Furthermore, such infectious diseases as are still prevalent are yielding in an almost miraculous manner to the more recent advances of medical science. Medicine finds its most appropriate field of successful activity in the stabilized populations and efficiently organized communities that progressively evolve during period of peaceful and harmonious human relations. In wartime, on the other hand, the varying disruptive influences of military conflict disturb the favorable effects of this equilibrium.—Dochez, A. R.; MacLeod, C. M., and McCormack, J. E.: Advances in Military Medicine, vol. I, Boston, Little, Brown and Company, 1948.

Clinical Notes, Suggestions and New Instruments

MASSIVE USE OF OXIDIZED GAUZE IN HEMORRHAGE FROM A MAJOR VESSEL

GEORGE A. STEWART, M. D.
and
JAMES N. CIANOS, M. D.
Baltimore

Since the preparation of oxidized gauze by Kenyon,[1] there has been an increasing use of this hemostatic agent wherever bleeding cannot be controlled by the ordinary methods of ligature or suture. Experimental work[2] in which small amounts of the material were buried in parenchymatous and supporting tissues of animals showed the gauze to be completely absorbable. There was, moreover, but slight reaction to the gauze, since there could be seen only minimal proliferation of glial and connective tissue. In no case were adhesions produced. However, when the gauze was placed in serous cavities such as the peritoneum, cysts were sometimes formed which were eventually resorbed.[3] Putnum[4] employed oxidized gauze impregnated with thrombin in thirty neurosurgical operations and reported gratifying results.

According to Frantz and associates,[3] oxidized gauze has an affinity for hemoglobin. As soon as it is soaked by blood, it turns into a brown or black mass, swells and becomes sticky. This adhering mass then effects hemostasis by taking the place of the clot that would form in the normal course of events. Reparative tissue does not invade the mass thus formed, which has a tendency to become rather friable within twenty-four hours. Healing takes place normally and the mass does not seem to be incorporated in the ensuing scar. Phagocytes which show large basophilic droplets within their cytoplasm later surround the gauze. This reaction seems to be pathognomic for oxidized gauze.

In a review of the literature, no instance could be found in which oxidized gauze was used in large quantities or in which it was used solely as a means of arresting bleeding from a major vessel. Frantz warned[3] that gauze should be used in as small a quantity as possible and also where wounds can be closed without drainage. In some instances[5] a small amount of gauze has been used in conjunction with ordinary packing and the latter was removed in twenty-four hours. In every case, however, the bleeding seems to have been a generalized ooze from raw surfaces rather than active hemorrhage from an artery or vein.

REPORT OF CASE

The patient, a white woman aged 53, was admitted to the hospital on June 22, 1947 with a diagnosis of thrombophlebitis of the left lower extremity. The present illness began suddenly on June 6, with pain in the left sural region. The pain continued to increase in severity and ascend along the leg to the groin. On the day of admission the pain was also felt in the left lower part of the abdomen and it was associated with nausea and vomiting. At about this time the leg began to swell. The remaining history was essentially negative except for a cesarean section which the patient had in 1935. This was unattended by any complications.

Physical examination showed a well nourished white woman complaining of pain in the left lower extremity. There was tenderness to deep palpation over the left lower quadrant of the abdomen. Tenderness in this region was also elicited by bimanual pelvic examination. The left lower extremity was

---

1. Yackel, E. C., and Kenyon, W. O.: J. Am. Chem. Soc. **64**:121, 1942. Unruh, C. C., and Kenyon, W. O.: ibid. **64**:127, 1942.
2. Frantz, V. K.: Ann. Surg. **118**:116, 1943.
3. Frantz, V. K.; Clarke, H. T., and Lattes, R.: Ann. Surg. **120**:181, 1944.
4. Putnum, T. J.: Ann. Surg. **118**:127, 1943.
5. Studdiford, W. E.: Am. J. Obst. & Gynec. **52**:495, 1946.

moderately edematous and of a pale cyanotic discoloration. It was cooler than the opposite extremity and exquisite tenderness was present in the region of the calf, along the course of the saphenous vein and over the femoral triangle.

The patient was placed on anticoagulants, lumbar sympathetic blocks and rest. The prothombin time was maintained at twenty-nine seconds. However, she failed to respond to this treatment, and the pain and swelling of the extremity seemed to increase. It was, consequently, decided to explore the deep veins.

With the patient under spinal "pentathol sodium" analgesia, the retroperitoneal space in the left side was exposed through a muscle-splitting incision. The peritoneum was peeled away from the posterior abdominal wall. The ureter was identified and retracted medially. The common iliac artery, which was adherent to the veins by periphlebitis, was carefully separated and retracted laterally. It was observed that the clot had ascended to the distal third of the common iliac vein, which was exposed preparatory to ligature. During this procedure a Deaver retractor which was used to retract the medial lip of the wound lacerated the common iliac vein. Immediately the field was flooded with blood. This was temporarily stopped by digital pressure and then packing. However, as soon as the pressure was removed, the vein bled just as before. Attempts to clamp the vessel merely caused it to tear proximally toward the inferior vena cava. The patient's condition was too precarious to expose and ligate the inferior vena cava through a midline incision. She was given 2,000 cc. of citrated blood and 1,000 cc. of plasma. It was decided as a last resort to pack the retroperitoneal space with oxidized gauze.[6] The contents of sixteen ampules were placed snugly against the bleeding area and held in position by a gauze pack for ten minutes. The patient's condition improved and, on removal of the pressure, it was found that there was no additional hemorrhage. The wound was quickly closed without drainage. The patient made an uneventful recovery and the wound healed per primum. Swelling and pain of the leg gradually subsided. Examination six weeks after the operation showed the wound to be well healed. There was no evidence of any mass or tenderness. The pain and swelling of the leg were completely absent and the patient stated that she experienced no difficulty.

SUMMARY

A case is reported in which massive use of oxidized gauze was used to arrest hemorrhage from a major vessel. No ill effects were observed and the gauze was apparently completely absorbed. In this particular instance enough gauze was used to act both chemically and by pressure in order to arrest bleeding.

---

[6] Prepared by Parke, Davis & Company.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary.*

AMINOPHYLLINE (See New and Nonofficial Remedies, 1947, p. 305).

The following dosage forms have been accepted:
George A. Breon & Co., Kansas City, Mo.

Tablets Aminophylline: 100 mg. and 200 mg.

Solution Aminophylline with Benzyl Alcohol 2%: 0.48 Gm. in 2 cc. ampuls.

Solution Aminophylline: Ampuls 0.25 Gm. in 10 cc. and 0.5 Gm. in 20 cc.

Lincoln Laboratories, Inc., Decatur, Ill.

Solution Aminophylline: 0.48 Gm. in 2 cc. and 20 cc. ampuls and 0.24 Gm. in 10 cc. ampuls.

AMINO ACID PREPARATIONS (See New and Nonofficial Remedies, 1947, p. 382).

The following dosage form has been accepted:
Mead Johnson & Company, Evansville, Ind.

Protolysate (*Powder*): 454 Gm. containers. A casein hydrolysate prepared by digestion with fish caeca for oral administration.

DIETHYLSTILBESTROL (See New and Nonofficial Remedies, 1947, p. 347).

The following dosage forms have been accepted:
Cole Chemical Co., St. Louis, Mo.

Tablets Diethylstilbestrol: 1 mg.

Solution Diethylstilbestrol in Oil: 1 cc. ampuls containing 1 mg. per cc. in peanut oil.

PHENOBARBITAL SODIUM (See New and Nonofficial Remedies, 1947, p. 418).

The following dosage form has been accepted:
The Warren-Teed Products Co., Columbus, Ohio

Solution Phenobarbital Sodium with Benzyl Alcohol 2% in Propylene Glycol: 0.13 Gm. per cc., 1 cc. ampuls.

ESTROGENIC SUBSTANCES (WATER INSOLUBLE) (See New and Nonofficial Remedies, 1947, p. 343).

The following dosage forms have been accepted:
Carroll Dunham Smith Pharmacal Co., New Brunswick, N. J.

Solution Estrusol in Oil with Benzyl Alcohol 3%: 20,000 international units per cubic centimeter in 1 cc. ampuls and 5 cc. and 15 cc. vials in peanut oil.

Solution Estrusol in Oil: 2,000, 5,000 or 10,000 international units per cubic centimeter in 1 cc. ampuls and 2,000 or 10,000 international units per cubic centimeter in 15 cc. vials in peanut oil. Preserved with 0.5 per cent chlorobutanol.

Aqueous Suspension Estrusol: 20,000 international units per cubic centimeter in 1 cc. ampuls, 5 cc. and 15 cc. vials. 1 cc. contains the equivalent of 20,000 international units of estrogenic substances, water insoluble in isotonic sodium chloride solution. Vials preserved with 0.5 per cent chlorobutanol.

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1947, p. 506).

The following dosage form has been accepted:
Reed & Carnrick, Jersey City, N. J.

Solution Thiamine Hydrochloride: 50 mg. per cc. in 10 cc. vials. Preserved with 0.5 per cent chlorobutanol.

PENICILLIN (See New and Nonofficial Remedies, 1947, p. 144).

The following additional dosage forms have been accepted:
Premo Pharmaceutical Company, Inc., New York

Nebutabs Crystalline Penicillin G Sodium: 50,000 units of crystalline penicillin G sodium, tableted without diluent for use in the preparation of solutions for nebulization. Packaged in boxes containing 24 Nebutabs and also in packages of 12 Nebutabs with an oral nebulizer or with a nasal nebulizer.
U. S. patent applied for.

Crystalline Penicillin G Potassium in Oil and Wax: 300,000 units per cubic centimeter, 5 cc. and 10 cc. vials. Penicillin G potassium suspended in peanut oil containing 4.8 per cent (W/V) white wax, U. S. P.

STREPTOMYCIN (See New and Nonofficial Remedies, 1947, p. 150).

The following dosage form has been accepted:
E. R. Squibb & Sons, New York

Streptomycin Hydrochloride: 20 cc. vials containing streptomycin hydrochloride equivalent in activity to 1 Gm. of streptomycin base and 40 cc. vials containing streptomycin hydrochloride equivalent in activity to 2 Gm. of streptomycin base.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - CHICAGO 10, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Twelve dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, APRIL 3, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors employed by the American Medical Association from their work continues. This issue of THE JOURNAL has been prepared largely by the use of Vari-Typer machines. Because of the difficulties of reorganization of the headquarters office necessitated by this situation, the editorial material in this issue of THE JOURNAL has been greatly condensed.

HEPATIC CIRRHOSIS TREATED WITH METHIONINE

In January 1947 the Council on Pharmacy and Chemistry reported on the status of methionine in the prevention and treatment of injury to the liver.[1] Certain chemical agents produced lesions in the liver of experimental animals closely resembling those seen in man in portal cirrhosis. Much experimental evidence is available indicating that injury of the liver may be produced by dietary deficiencies. Gyorgy and Goldblatt[2] found that necrosis or cirrhosis of the liver would develop in rats on a low protein diet and that the administration of choline would prevent the development of these conditions. Daft, Sebrell and Lillie[3] confirmed this work and found also that some protection to the liver was afforded by the addition of choline, methionine and casein. In a later report[4] Gyorgy and Goldblatt concluded that the cirrhosis produced in animals by a low protein diet could be prevented by a combination of choline and cystine or by methionine alone. The Council in its report emphasized, however, that the experimental dietary cirrhosis seen in animals is not histologically the same as portal cirrhosis in man and that the experiments need clinical confirmation on human patients.

Since the Council's report was published a study on a group of patients with cirrhosis has been reported[5] by Beams and Endicott. Nine patients with cirrhosis in the decompensated stage were given dl-methionine by mouth; 3 patients who were extremely ill first received a 2 per cent solution of the agent by vein from eight to twenty days preceding the oral administration. All patients in this group were given a high protein, low fat diet and 45 Gm. of brewers' yeast a day, except 1 patient who was not able to take so much protein and yeast. All except 1 patient received also 5 cc. of crude liver extract three times a week. A second group of 5 patients, including 2 who had been treated with methionine supplement and had had recurrences, received the same treatment as the first group except for methionine supplement. The food intake of most of both groups was calculated daily. The diet provided from 2 to 5 Gm. of methionine a day. Liver needle biopsies were obtained before treatment started and again after periods of several weeks of treatment. Other laboratory studies were done at frequent intervals.

The 9 patients who received methionine supplement showed histologic changes in the liver which indicated a favorable response to the treatment; 5 patients in this group, 1 of whom did not receive crude liver extract, showed clinical improvement also, and 3 of them have remained well for from one to two years. Two of the 5 patients ate poorly, continued to drink intoxicating liquor after discharge from the hospital and had recurrences, 1 after twelve months and 1 after seven months.

While the histologic changes in the liver indicating favorable response to treatment occurred in both groups of patients, a definite difference was observed in the number of patients who showed such changes and in the degree of change. In those who received methionine supplement the changes were striking. The parenchymal cells revealed definite improvement in histologic appearance, and there was a disappearance of fat. The only difference in the treatment of the two groups was the use of methionine supplement. The author concludes, therefore, that methionine was responsible for the different results obtained.

---

[1] The Status of Methionine in the Prevention and Treatment of Liver Injury, report of the Council on Pharmacy and Chemistry, J.A.M.A. 133:107 (Jan. 11) 1947.

[2] Gyorgy, P., and Goldblatt, H.: Proc. Soc. Exper. Biol. & Med. 46:492-494, 1941.

[3] Daft, F.S.; Sebrell, W.H., and Lillie, R.D.: Proc. Soc. Exper. Biol. & Med. 48:228-229, 1941.

[4] Gyorgy, P., and Goldblatt, H.: J. Exper. Med. 75:191-195, 1942.

[5] Beams, A.J., and Endicott, E.T.: Gastroenterology 9:718-735, 1947

In one half of the cases the improved histologic picture was accompanied by improvement in the clinical course and, in some, of the liver function tests also. An increase in sulfobromophthalein sodium excretion was a fairly constant observation. In the other half of the cases no correlation was noted between the histologic changes and the clinical course or hepatic function. Two patients improved clinically but did not show histologic changes, and 1 of them did not show improved function of the liver. An adequate explanation is not available for the correlation between the histologic changes, laboratory results and clinical course in some patients and not in others. Possible in those who showed an improved histologic picture without improvement in the clinical or laboratory observations the perilobular fibrosis isolated hepatic lobules or groups of cells in a manner that interfered with the portal circulation and obstructed the biliary capillaries.

Thus all the patients who received the methionine supplement showed histologic changes indicating a favorable response irrespective of a high protein diet, crude liver extract or brewers' yeast. Among the patients who did not receive methionine supplement only 1 showed significant histologic changes after treatment. Clinical improvement and improvement in hepatic function were associated with histologic changes in 7 patients, 6 of whom received methionine supplement and 1 of whom did not.

This study suggests that methionine was responsible for the improved histologic changes in the liver which occurred in these patients.

Current Comment

THE WORLD HEALTH ORGANIZATION

Recently the Rules Committee of the House of Representatives tabled a bill to ratify the constitution of the World Health Organization and make the United States a member of that body. Already twenty-three other nations have signed the constitution of W.H.O., and the three additional ratifications necessary to complete organization will unquestionably become effective within the next few weeks. The first meeting of the new World Health Organization has been called in Geneva, Switzerland, in June 1948. This means, no doubt, that the United States will not be present as a member. Unfortunately a statement has not appeared as to why the Rules Committee took the action mentioned. Unless there are reasons which are secret and not available, the failure of the Rules Committee to recommend positive action is an embarrassment to American leaders in the field of health. The American Medical Association has thus far participated in the development of the World Health Organization and has also played a leading role in the organization of the World Medical Association. There has seemed to be every reason why these two bodies could cooperate for the advancement of world health. Some of the projects which the Interim Commission of the World Health Organization has been studying include international agreements for the control of quarantine and isolation and for the prevention and spread of infectious diseases; the establishment of international standards for biologic and similar agents, and the development and circulation of scientifically collected vital statistics. The Rules Committee which has rejected participation by the United States in this activity would do well to explain the action taken to the American agencies interested in public health which have thus far strongly supported participation by our government in the World Health Organization.

PRESCRIBING OF PHARMACEUTIC SPECIALTIES

At a recent meeting, the Council on Pharmacy and Chemistry considered complaints from physicians who wished to incorporate some of the newer drugs in their prescriptions. These could not be filled readily because of the unavailability of the product in bulk forms. These physicians requested the Council to require manufacturers to supply their drugs in bulk form before consideration would be given to the product for inclusion in New and Nonofficial remedies. The Council did not consider it feasible to make such a requirement but expressed the opinion that pharmaceutic manufacturers should be informed of the desirability of making drugs available in powdered or bulk form. The growing tendency to make all drugs available in ready-made dosage forms has been the result of a number of factors. Economy, accuracy in dosage and pharmaceutic elegance are among the immediate reasons. The development of new potent or specific remedies and the decline of polypharmacy are among the more basic reasons for this trend. The result of this trend has tended to diminish the individualization of therapy. The treatment of disease is only one aspect of the treatment of the patient. The therapy prescribed should be designed to fit the needs of the individual patient and not the "average" patient. Rational combinations of drugs are required on occasion as well as dosages not available from the stocks of a commercial supplier. If the drugs are not available in bulk form, the pharmacist either cannot fill the prescription or must laboriously convert one dosage form into another.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

April 2 1948.

Congress Studies Military Training and Draft Legislation

Congress has under consideration the recommendations of President Truman for expanded defense forces, and enactment of universal military training and the draft. The armed services have submitted to the President alternate defense plans calling for from $2,000,000 to $11,000,000 more than the proposed $11,000,000,000 military budget for fiscal 1949. Testifying before the Senate Armed Services Committee, Dr. Karl T. Compton, president of Massachusetts Institute of Technology, declared that some educational groups and educators were hasty and ill-informed in opposing a training program. On the question of reestablishing the draft, the American Veterans of World War II have recommended that disabled veterans of 1941-45 be given key posts on selective service boards. Republican senators have indicated that they might consent to register, but delay the drafting of, young men for military service.

Only Twenty-Eight Doctors Accused of Overcharging Veterans

Although there are in the United States about 85,000 physicians authorized to give veterans hometown treatment on the basis of billing the Veterans Administration for the expense under a set schedule of fees, only twenty-eight physicians have been accused by the agency of irregularities. Their names have been given to the American Medical Association, the agency reported. Alleged offenses range from minor violations of regulations to fraud. One physician is accused of charging the agency $160 for treatment of a veteran and of billing the same treatment for another $100. Names of the physicians were not disclosed. Of twenty removed from the authorized lists, five were in the New York region, four in Philadelphia, four in Pittsburgh, three in Chicago, and one each in Norfolk, Va.; Minneapolis, Wichita, Kan., and San Francisco.

Criticism of Condon Described as Threat to Research

Dr. David R. Inglis, Johns Hopkins University physicist and a former member of the Los Alamos atomic energy laboratory, told a meeting of the Washington Association of Scientists that the action of a House Committee in questioning the loyalty of Dr. Edward U. Condon, director of the National Bureau of Standards, was a threat to scientists and scientific research. He said: "There are large implications to these attacks; first, those pertaining to science and scientists—the contributions of scientists to the national welfare—and, second, those pertaining to the constitutional liberties of all citizens." With reference to the vast program of governmental research, he said that such technics of character assassination mean that scientists and engineers will "be very reluctant to enter federal research agencies." He added that 'the witch hunt might even be extended to embrace all scientists as a class."

St. Elizabeths Hospital

Dr. Winfred Overholser, superintendent of St. Elizabeths Hospital, stated in his annual report, forwarded to Congress by Federal Security Administrator Oscar R. Ewing, that dangerous mental patients are kept in an inadequate building which should be replaced by a new four hundred bed security unit. He said that limited space made it necessary to keep dangerously aroused patients and those under criminal charges in a building which was built more than thirty years ago.

George Washington University Hospital Opened to Public

The public and press of the capital accorded a *cordial 'welcome" to newly opened four hundred* bed George Washington University Hospital. The $4,000,000 structure is the first of several buildings that the university plans to have in its medical center. The modern character of the hospital impressed visitors.

State Legislation

Kentucky

Bill Introduced.—H. 424, relating to hospitals, proposes that no hospital shall deny admission to the patient of *any licensed physician at any time that there are in the* hospital beds and room facilities suitable for such patient and further proposes that no hospital shall enter into any agreement with any physician or group of physicians pursuant to which any bed or room facilities in the hospital are to be reserved for unnamed patients of such physicians or pursuant to which such physicians are allocated or assigned certain bed or room facilities for their patients.

Bills Passed.—H. 447 passed the senate March 19. It authorizes any hospital or other institution offering accredited courses of instruction in nursing, medicine, surgery, or other related courses of graduate study or on the professional level, to elect by a majority vote of its governing body to receive as pupils persons of all races. S. 105 passed the house March 10. It proposes the creation of a medical research commission to provide for a program of research in the fields of medicine, surgery and allied sciences, preventive medicine, control of diseases and all other features of medicine and surgery that affect the health and welfare of the people of the state. S. 197 passed the house March 18. It proposes the creation and establishment of a division of medical hospitals and related *services in the department of health to* make a survey of hospital facilities throughout the state and to accept federal funds to assist in the construction of additional needed facilities. The proposal would also require the appointment of an advisory council and the preparation of necessary regulations and standards pertaining to the conduct and operation of hospitals which are constructed by virtue of the act. S. 342 passed the house March 19. It proposes to create a Kentucky Building Commission to have charge of buildings constructed throughout the state and proposes that appropriations to this commission shall be used, among other things, for matching funds for hospital construction under any law now existing or that may be passed by the national Congress.

Mississippi

Bills Introduced.—H. 687 proposes the enactment of a hospital licensing law and, in conjunction therewith, the appointment of an advisory hospital council to consult and advise with the licensing agency and to assist in the development of rules, regulations and standards to be required of hospitals seeking licensure. H. 717 proposes an *appropriation to defray the expenses of the* state program of eradication and control of syphilis and other venereal diseases. H. 818 proposes an appropriation to the Mississippi commission on hospital care for the purpose of building, erecting and equipping hospitals and other facilities within the state of Mississippi. S. 453 proposes an enabling act for the organization and operation of nonprofit hospital, medical and surgical service corporations.

Coming Medical Meetings

Alabama, Medical Association of the State of, Mobile, April 15-17. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

American Association for the Study of Goiter, Toronto, Can., King Edward Hotel, May 6-8. Dr. Thomas C. Davison, 478 Peachtree St.N.E., Atlanta, Ga., Secretary.

American Association of Anatomists, Madison, Wis., April 21-23. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Genito-Urinary Surgeons, Skytop, Pa., Skytop Lodge, May 12-14. Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secretary.

American Association of Plastic Surgeons, Boston, May 6-8. Dr. W. H. Steffensen, 1810 Wealthy St.S.E., Grand Rapids, Mich., Secretary.

American Association of the History of Medicine, Philadelphia, Penn Sheraton Hotel, May 26-27. Dr. Howard Dittrick, 2020 E. 93d St., Cleveland 6, Secretary.

American Association on Mental Deficiency, Boston, Hotel Statler, May 12-15. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American Broncho-Esophagological Association, Atlantic City, Chalfonte-Haddon Hall, April 7-8. Dr. Paul H. Holinger, 700 N. Michigan Ave., Chicago 11, Secretary.

American College of Physicians, San Francisco Civic Auditorium, April 19-23. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Secretary.

American Dermatological Association, Coronado, Calif., April 26-29. Dr. Harry R. Foerster, 208 E. Wisconsin Ave., Milwaukee, Secretary.

American Federation for Clinical Research, Atlantic City May 4. Dr. John S. LaDue, 139 E. 36th St., New York 16, Secretary.

American Gastro-Enterological Association, Atlantic City, Claridge Hotel, April 30-May 1. Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco, Secretary.

American Hearing Society, Pittsburgh, May 19-23. Mrs. Frances E. Lee, 817 Fourteenth St. N.W., Washington 5, D. C., Secretary.

American Laryngological Association, Hot Springs, Va., April 14-15. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia 2, Secretary.

American Laryngological, Rhinological and Otological Society, Atlantic City, April 7-9. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Ophthalmological Society, Hot Springs, Va., May 16-19. Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.

American Orthopsychiatric Association, New York, Hotel Commodore, April 12-14. Nina Ridenour, Ph.D., 1790 Broadway, Rm. 916, New York 19, Secretary.

American Otological Society, Hot Springs, Va., April 12-13. Dr. Gordon D. Hoople, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

American Pediatric Society, Quebec, Can., May 24-26. Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secretary.

American Physiotherapy Association, Chicago, La Salle Hotel, May 23-28. Miss Mildred Elson, 1790 Broadway, New York 19, Executive Secretary.

American Psychiatric Association, Washington, D. C., Statler Hotel, May 17-20. Dr. Leo H. Bartemeier, General Motors Bldg., Detroit 2, Secretary.

American Society for Clinical Investigation, Atlantic City, Haddon Hall, May 3. Dr. Eugene A. Stead Jr., Duke Hospital, Durham, N. C., Secretary.

American Society for Research in Psychosomatic Problems, Atlantic City, May 1-2. Dr. Eugene Ferris, 714 Madison Ave., New York 21, Secretary.

American Student Health Association, Detroit, Hotel Statler, May 7-8. Dr. George T. Blydenburgh, Ohio Weslayan University, Delaware, Ohio, Secretary.

American Urological Association, Boston, Hotel Statler, May 17-20. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Arizona State Medical Association, Phoenix, Hotel Westward Ho, May 19-21. Dr. Frank J. Milloy, 234 N. Central Ave., Phoenix, Secretary.

Arkansas Medical Society, Little Rock, Robinson Auditorium, April 15-17. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association of American Physicians, Atlantic City, May 4-5. Dr. Henry M. Thomas Jr., 1201 N. Calvert St., Baltimore 2, Secretary.

California Medical Association, San Francisco, April 11-14. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.

Connecticut State Medical Society, Fairfield, April 27-29. Dr. Creighton Barker, 258 Church Street, New Haven, Secretary.

Florida Medical Association, St. Augustine, Ponce de Leon Hotel, April 11-14. Dr. Robert B. McIver, 111 W. Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta, April 27-30. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta Secretary.

Hawaii Territorial Medical Association, Honolulu, May 6-9. Dr. Harry L. Arnold Jr., 510 S. Beretania St., Honolulu 53, Secretary.

Illinois State Medical Society, Chicago, Palmer House, May 10-12. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.

International Congresses on Tropical Medicine and Malaria, Washington, D.C., May 10-18. Dr. Wilbur A. Sawyer, Department of State, Washington 25, D.C., Executive Secretary.

Iowa State Medical Society, Des Moines, April 18-21. Dr. John C. Parsons, 406 Sixth Ave., Des Moines 9, Secretary.

Kansas Medical Society, Wichita, The Forum, May 10-13. Dr. Dale D. Vermillion, 512 New England Bldg., Topeka, Secretary.

Louisiana State Medical Society, Monroe, April 12-14. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans 13, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 27-28. Dr. George H. Yeager, 1211 Cathedral St., Baltimore, Secretary.

Massachusetts Medical Society, Boston, Hotel Statler, May 25-27. Dr. H. Quimby Gallupe, 8 Fenway, Boston 15, Secretary.

Mississippi State Medical Association, Jackson, May 11-13. Dr. T. M. Dye, Box 295, Clarksdale, Secretary.

National Society for the Prevention of Blindness, Minneapolis, Hotel Radisson, April 5-7. Mrs. Eleanor Brown Merrill, 1790 Broadway, New York 19, Executive Director.

Nebraska State Medical Adsociation, Lincoln, Hotel Cornhusker, May 3-6. Dr. R. B. Adams, 416 Federal Securities Bldg., Lincoln 8, Secretary.

New England Dermatological Society, Boston, April 14. Dr. G. Marshall Crawford, 1180 Beacon St., Brookline, Secretary.

New Jersey, Medical Society of Atlantic City, Haddon Hall, April 26-29. Dr. Earl LeRoy Wood, 315 W. State St., Trenton, Secretary.

North Carolina, Medical Society of the State of. Pinehurst, May 3-5. Dr. Roscoe D. McMillan, P.O. Box 232, Red Springs, Secretary.

North Dakota State Medical Association, Jamestown, May 23-28. Dr. O. A. Sedlak, 792 First Ave. S., Fargo, Secretary.

Northern Tri-State Medical Association, Findlay, Ohio, April 14. Dr. F. Cameron, 247 W. Berry St., Fort Wayne, Indiana, Secretary.

Ohio State Medical Association, Cincinnati, Netherland Plaza Hotel, March 30-April 1. Mr. C. S. Nelson, 79 E. State St., Columbus 15, Secretary.

Oklahoma State Medical Association, Oklahoma City, Skirvin Hotel, May 17-19. Mr. R. H. Graham, 210 Plaza Court, Oklahoma City, Executive Secretary.

Post Graduate Institute of the Philadelphia County Medical Society, Philadelphia, Bellevue-Stratford Hotel, April 20-23. Dr. Gilson Colby Engel, 301 S. 21st St., Philadelphia, Director.

Rhode Island Medical Society, Providence, May 12-13. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.

Society of American Bacteriologists, Minneapolis, Nicollet Hotel, May 10-14. Dr. Leland W. Parr, 1335 H St. N. W., Washington 5, D. C., Secretary.

Society of Biological Psychiatry, Washington, D.C., May 16. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles 14, Secretary.

South Carolina Medical Association, Charleston, Francis Marion Hotel, May 12-14. Dr. Julian P. Price, 105 W. Cheves St., Florence, Secretary.

Southeastern Surgical Congress, Hollywood, Fla., Hollywood Beach Hotel, April 5-8. Dr. Benjamin T. Beasley, 45 Edgewood Avenue S.E., Atlanta 3, Ga., Secretary.

Southern Society of Clinical Surgeons, Chicago, May 26-28. Dr. William P. Nicolson Jr., 478 Peachtree St. N.E., Atlanta, Ga., Secretary.

Southwest Allergy Forum, Oklahoma City, April 5-6. Dr. Fannie Lou Leney, 1200 N. Walker St., Oklahoma City, Secretary.

Tennessee State Medical Association, Nashville, April 13-14. Dr. W. M. Hardy, 706 Church St. Nashville 3-Secretary.

Texas, State Medical Association of, Houston, Rice Hotel, April 26-29. Dr. Harold M. Williams, 1404 W. El Paso St., Fort Worth, Secretary.

Western Association of Industrial Physicians and Surgeons, San Francisco, Fairmont Hotel, April 10. Dr. Christopher Leggo, Crockett, Calif. Secretary.

Western Section American Urological Association, Victoria, B. C., Empress Hotel, April 19-21. Dr. Adolph A. Kutzmann, 1930 Wilshire Blvd., Los Angeles, Secretary.

GOVERNMENT SERVICES

ARMY

MODIFICATION OF THE MUNSON SHOE LAST

The Army's service and combat footwear has been made over the Munson last since 1912. Brig. Gen. Edward L. Munson, of the Army Medical Corps, then a lieutenant colonel, designed the last after the most comprehensive study of the human foot in relation to military footwear ever undertaken by the Army up to that time. The Munson last served American soldiers in two great wars and at the time of its development was the most scientific approach ever made to properly fitting the soldier's foot. However, World War II demonstrated that the shoes and boots fitted too closely over the little toe area and wore out too quickly because of the excessive roundness of the bottom forepart of the last. To overcome these deficiencies, the last has now been modified to allow 1/8 inch (0.3 cm.) more room in the forepart of the shoe and to reduce the roundness of the bottom forepart across the tread.

Modification of the Munson last is only an interim step in a long range project which contemplates a completely new last. Two major surveys have determined the actual shapes and measurements of men's feet representing the Army as a whole. One, conducted by the Army Medical Research Laboratory at Fort Knox, covered twenty-seven different foot measurements of 7,559 men. The other survey of nearly 100,000 men at separation centers was a part of an anthropometric survey conducted by the Quartermaster Corps.

During and since the war the Quartermaster Corps has supplied two hundred and thirty-nine different sizes of footwear in regular and special sizes, besides other sizes made to special measurements. There are ninety sizes in the regular footwear tariff. The one hundred and forty-nine special sizes covered men who could not be fitted in the regular tariff.

CHIEF DIETITIAN MADE A LIEUTENANT COLONEL

The Surgeon General announced February 24 the appointment of Major Helen C. Burns as assistant director of the new Women's Medical Corps and chief of the dietitian section of that corps, with the rank of Lieutenant Colonel, the highest grade yet held by an Army dietitian. Colonel Burns is a graduate of Simmons College, Boston, and attended the Army School for Dietitions at Walter Reed General Hospital. She was superintendent of dietitians in the Surgeon General's Office during the recent war and is a past president of the District of Columbia Dietetic Association.

AWARDS AND COMMENDATIONS

Colonel Montgomery E. Leary

The Army Commendation Ribbon has been awarded to Col. Montgomery E. Leary, M.C., O.R.C., of Rochester, N. Y. The citation reads as follows: "Colonel Montgomery E. Leary performed meritorious service as Contract Surgeon for the United States Army at Rochester, N. Y., from June 1943 to May 1945. Despite difficulties as to equipment, transportation, supplies and drugs necessary for the treatment of personnel at military installations in Rochester and the vicinity for whose care he was responsible, he displayed outstanding devotion to duty and loyalty in providing them with proper medical treatment and attention." Colonel Leary was graduated from the University of Pennsylvania Medical School and was called to active duty as medical officer in charge of medical care of personnel in the Rochester area June 1, 1943.

NAVY

APPROVED FOR POSTGRADUATE TRAINING

The Advisory Board of the Bureau of Medicine and Surgery has approved the following officers for postgraduate training:

Lieut. Frank H. Thomas Jr. (MC); course in internal medicine at the University of Pennsylvania Graduate School of Medicine.

Comdr. Henry J. Hunter (MC); obstetrics and gynecology at the Boston Lying-In Hospital and the Free Hospital for Women, Brookline, Mass.

Comdr. Clement D. Burroughs (MC); residency in ophthalmology at a Naval Hospital.

Lieut. (jg) Earl E. Correll (MC); residency in otolaryngology at the Naval Hospital, San Diego, Calif.

Lieut. David J. McMurray (MC); residency in otolaryngology at a Naval Hospital.

Lieut. (jg) Fred A. Valusek (MC); residency in otolaryngology at a Naval Hospital.

Lieut. (jg) Newman A. Hoopingarner (MC); residency in orthopedic surgery at Naval Hospital, St. Albans, L.I., N.Y.

Comdr. Richard B. Williams Jr. (MC); instruction in pathology and research at University of Pennsylvania.

Comdr. Neville C. Bowers (MC); additional years' training in psychiatry at National Naval Medical Center, Bethesda, Md.

Comdr. David P. Hightower (MC); additional years training in psychiatry at the Naval Hospital National Naval Medical Center, Bethesda, Md.

TRANSFER RESEARCH UNIT

The naval hospital at Dublin having been turned over to the Veterans Administration, plans are under way to transfer Naval Medical Research Unit 4 from that hospital to the Naval Training Station at Great Lakes, Illinois.

NAVY AWARDS AND COMMENDATIONS

Jacob C. Geiger, M.D.

The U.S. Navy, through the Surgeon General, has awarded a certificate of appreciation to Dr. J.C. Geiger, director of public health of San Francisco. The citation read as follows: "In grateful acknowledgment of exceptional and outstanding services rendered to the Medical Department of the Navy during the period of World War II." A special citation from the District Medical Officer of the Twelfth Naval District read: "For meritorious services in the control of communicable diseases in the port of San Francisco." Dr. Geiger graduated from Tulane University of Louisiana School of Medicine, New Orleans in 1912.

VETERANS ADMINISTRATION

PATIENTS WITH NONSERVICE-CONNECTED DISABILITIES

In a statistical summary of Veterans Administration activities as of Jan. 3, 1948, the number of patients in hospitals was 109,018, of whom 94,948 were in veterans' hospitals. Of these, 62,384 were veterans with nonservice-connected disabilities and 31,297 were veterans with service-connected disabilities. Of the patients in other than veterans' hospitals, 8,085 were veterans with nonservice-connected disabilities and 5,953 were veterans with service-connected disabilities. In addition there were 14,920 beneficiaries in Veterans Administration homes. The number of veterans awaiting hospital admission at the end of the month was 19,505, of whom 18,907 had nonservice-connected disabilities.

NEW CHIEF OF NEUROPSYCHIATRIC SERVICE

Dr. Paul B. Magnuson, chief medical director of the Veterans Administration, has announced the appointment of Dr. Harvey J. Tompkins of Arlington, Va., as head of the neuropsychiatric service in the department of medicine and surgery to succeed Dr. Daniel Blain, who resigned to become medical director of the American Psychiatric Association. Dr. Tompkins graduated in medicine at Loyola University of Chicago. He joined the Veterans Administration in 1935 and, after serving at hospitals in various states, was assigned to the central office in 1945 as assistant chief of the neuropsychiatry division. He is associate professor in psychiatry at Georgetown University School of Medicine and is certified by the American Board of Psychiatry and Neurology.

PERSONAL

Dr. Lee G. Sewall has been appointed chief of professional services at the Roanoke (Va.) veterans' hospital and Dr. Victor J. Covalesky, as assistant chief.

Dr. Carroll L. Moore has become manager of the veterans' hospital at Excelsior Springs, Mo., succeeding Dr. S. E. Walker, who has been transferred to the regional office in Kansas City, Mo.

Dr. Peter A. Volpe, Worthington, Ohio, has been appointed medical director for the Veterans Administration for Ohio, Michigan and Kentucky. Dr. Volpe served in the recent war with the Sixth Armored Division.

MISCELLANEOUS

RADIOACTIVE ISOTOPES GO TO FOREIGN COUNTRIES

The United States atomic energy commission has disclosed according to *Chicago Tribune*, that forty-four shipments of radioactive isotopes have been sent to individuals and research groups in eight countries since the foreign distribution program was announced last September. Since then, sixteen countries have completed arrangements for receiving radioactive isotopes for medical and biologic research from Oak Ridge, Tenn. These countries are Argentina, Australia, Belgium, Canada, Cuba, Denmark, France, Ireland, Italy, Netherlands, New Zealand, Peru, South Africa, Switzerland and the United Kingdom. Radioactive phosphorus has been exported more than any other of the isotopes available.

Any country desiring radioactive isotopes must first submit to the state department the name of its representative in the United States who will maintain liason with the Atomic Energy Commission. The applicant country agrees to forward to the commission progress reports at intervals of six months on the results of the investigations carried on with the isotopes and agrees that the material will not be used for purposes other than those shown in the request.

ATOMIC ENERGY FELLOWSHIP TRAINING PROGRAM

The U. S. Atomic Energy Commission announces a fellowship program for training qualified persons for careers in the medical and biologic aspects of atomic energy. The commission will finance the program and establish the operating policies and training goals to be met; actual administration of the program, including selection of candidates, will be undertaken on behalf of the commission by the National Research Council, which has had broad experience in the administration of fellowship programs. Announcements concerning number of fellowships to be offered, stipends and qualifications of candidates and conditions of the awards will be issued through the National Research Council in the near future.

Applicants from any branch of biology or medicine are eligible for fellowships. At present, candidates will be favored who intend to follow a career of research in one of the basic biologic or medical sciences as related to the field of atomic energy or in clinical medicine or surgery as related to the field of atomic energy. Applicants in medicine and surgery will be encouraged to lay out a program of study leading to thorough experience in a preclinical science during which study they become identified with this science as such and not primarily with its application to clinical studies.

The initial fellowships will be distributed among three broad classes of candidates, including (1) doctors of medicine; (2) doctors of philosophy in the biologic sciences and (3) bachelors of science and of arts, who will receive training in health physics. Postdoctoral fellowships will extend for a period of two years with annual stipends, depending on marital status, commensurate with other fellowship programs. Graduate training in health physics will extend for a period of one year or longer, depending on the qualifications of the candidate and his need or desire for additional training.

It is anticipated that fellows trained under the program will become leaders in future development of medical and biologic education in the field of atomic energy. An opportunity to use their training at research and production centers will be offered, although the fellows will not be committed to work at installations of the Atomic Energy Commission following their training.

Special consideration will be given institutions in which it is possible to integrate medical and biologic training with physics, chemistry and mathematics. Since conditions allowing this combination are limited, special facilities are being provided at A. E. C. regional laboratories and at certain universities. However, fellowship training will not be limited to these institutions. As a rule a fellow will be requested to work in an institution other than that to which he is attached at the time of application or at which he has done most of his postgraduate work.

A paramount factor in planning the size and scope of the fellowship program was the serious shortage of trained scientific personnel in the field of atomic energy as applied to biology and medicine.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

First Annual Graves Lectures. —An annual lecture series honoring Dean Stuart Graves, director of admissions for medicine at the Medical College of Alabama, Birmingham, and dean of the school from 1928 to 1945, was initiated at the Jefferson-Hillman auditorium recently, sponsored by the Nu Sigma Nu Fraternity. Dr. E. Thompson Bell, director since 1921, department of pathology, University of Minnesota Medical School, Minneapolis, was the speaker. Dr. Graves has been a national officer of the Nu Sigma Nu Fraternity for more than forty years.

ARIZONA

Society News. —Dr. Charles N. Sarlin, Tucson, read a paper on "The Dissection of a Neurotic Personality" before the Arizona Society of Psychiatry and Neurology February 28.

Foods Manufacturer Fined.—A federal court jury February 20 found Adolphus Hohensee, lecturer on health and manufacturer of "Adolphus" brand foods and drugs, guilty on twenty-one of twenty-two counts charging misbranding of "health" products shipped in interstate commerce, according to newspaper reports. He was fined $1,800 and was not committed. Hohensee, a native of Scranton, Pa., had been lecturing in Phoenix.

CALIFORNIA

Popular Medical Lectures.—Stanford University School of Medicine, San Francisco, is presenting the sixty-sixth course of lectures at Lane Hall on Friday evenings at 8 o'clock. Three more lectures will be given: April 9, Drs. Roland A. Davison, Donald E. King and William H. Northway, all of San Francisco, "Rheumatism: the Great Crippler"; April 16, Dr. William M. M. Kirby, San Francisco, "Can Streptomycin Cure Tuberculosis?" and April 30, Dr. Edwin H. Lennette, Berkeley, "Filtrable Viruses: the Invisible Killers."

State Medical Meeting.—The annual session of the California Medical Association will be held in San Francisco with headquarters at the St. Francis Hotel April 11-14, under the presidency of Dr. John W. Cline, San Francisco. Guest speakers at the general sessions will be:

George F. Lull, Chicago, Secretary and General Manager, American Medical Association, What is Being Done About the Ten Point Program?
Richard B. Cattell, Boston, Carcinoma of the Rectum.
J. William Hinton, New York, End Result of Thorocolumbar Sympathectomy in Advanced Essential Hypertension.
Wesley Bourne, Montreal, Canada, Anesthesiology.
George W. Thorn, Boston, Diagnosis and Treatment of Adrenal Insufficiency.
Henry E. Michelson, Minneapolis, Dermatology.

A clinical-pathologic conference is scheduled for part of the Tuesday morning program, and special meeting on postgraduate training and medical economics will be held Wednesday from 2 to 4 p.m. Sectional meetings have been arranged on general surgery; general practice; anesthesiology; dermatology and syphilology; eye, ear, nose and throat; industrial medicine and surgery; neuropsychiatry; obstetrics and gynecology; pathology and bacteriology; pediatrics; public health; radiology, and urology. The Woman's Auxiliary will meet April 11-13 at the Mark Hopkins Hotel. The California Heart Association, the California Society of Internal Medicine and the Western Association of Industrial Physicians and Surgeons will hold annual meetings in conjunction with that of the medical association.

COLORADO

Course in Well Child Supervision.—The Colorado State Department of Health, the Rocky Mountain Pediatric Society and the University of Colorado Medical Center will sponsor a three day graduate course in well child supervision at the University of Colorado Medical Center, Denver, April 26-28. The course is intended primarily for Colorado physicians, but other physicians who are interested may apply in writing to the director of graduate medical education, Dr. Frode Jensen, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 7.

ILLINOIS

Meeting of Chest Physicians.—The Illinois Chapter of the American College of Chest Physicians will meet April 16 at 8 p.m. in the Congress Hotel, Chicago. Subjects to be discussed are "Bronchial Lavage as a Diagnostic Aid in Chest Diseases" and "Differential Diagnosis in Cystic Disease of the Lung." A panel discussion on adenoma of the bronchus completes the program. A dinner has been arranged at the hotel for 6:39 p.m., and all physicians are invited.

Chicago

Cancer Research Grants.—Grants totaling $325,547 for cancer research have been given to the University of Chicago and six individual medical investigators by the American Cancer Society, Inc. A check for $190,000 was received February 27 at the annual meeting of the cancer society in Chicago.

City Gets Third Cancer Detection Center.—The third cancer detection center for the city of Chicago was opened at Grant Hospital on March 12, under the sponsorship of the American Cancer Society Inc. Only women patients will be admitted. Other centers previously opened are at Women's and Children's Hospital and at Henrotin Hospital.

Kretschmer Memorial Lecture.—The seventh Edwin R. Kretschmer Memorial Lecture will be delivered at the Palmer House Friday evening, April 23, at 8 o'clock by Julius White, Ph.D., head chemist, U.S. Public Health Service, National Institute of Health, Bethesda, Md., on "Experimental Studies on Leukemia in Mice."

Northwestern Faculty-Alumni Reunion.—The annual Faculty-Alumni Reunion Dinner will be held May 8 at the Furniture Club of America, 666 Lake Shore Drive, Chicago, at 6 p.m. The cost of the dinner is $6 a plate, and reservations must be made not later than May 4 at the Medical Alumni Office, 303 East Chicago Avenue, Chicago, Room 796. The telephone number is Superior 4500. The five year classes of 1903, 1908, 1913, 1918, 1923, 1928, 1933, 1938 and 1943 should plan special reunions. The honored guests will be the fifty and fifty-five year classes, 1898 and 1893, and the graduating class of 1948. Special entertainment is being planned; there will be no speeches.

IOWA

State Medical Meeting.—The Iowa State Medical Society will hold its ninety-seventh annual session at the Hotel Fort Des Moines, Des Moines, April 18-21 under the presidency of Dr. Harold A. Spilman, Ottumwa. Twelve guest speakers will give papers at the general sessions:

Howard B. Burchell, Rochester, Minn., Diagnosis of Congenital Heart Disease with Respect to Cardiac Catheterization and Oximetry.
John H. Moe, Minneapolis, Fractures of Neck of Femur.
Winthrop M. Phelps, Baltimore, Cerebral Palsy.
Charles D. May, Minneapolis, Chronic Disorders of the Digestive System in Children.
Walter C. Alvarez, Rochester, Minn., What Can the General Practitioner Do for the Nervous Patient?
W. Walter Wasson, Denver, The Lesser Circulation.
James S. Speed, Memphis, Tenn., Ruptured Intervertebral Disks.
Alson E. Braley, New York, Relation Between Ocular Disorders and Thyroid Dysfunction.
Willis J. Potts, Chicago, Diagnosis and Surgical Treatment of Patent Ductus Arteriosus and Congenital Vascular Ring.
Elmer L. Henderson, Louisville, Chairman, Board of Trustees, American Medical Association, World Medical Association.
M. Edward Davis, Chicago, Modern Management of Third Stage and Postpartum Hemorrhage.
Roland S. Cron, Milwaukee, Wis., Treatment of Carcinoma of the Cervix.

The annual banquet will be April 20 at 7 p.m. The Woman's Auxiliary to the society will meet April 19 and 20 at the Hotel Savery, and special luncheons and dinners have been scheduled for a number of state societies.

KANSAS

The Porter Lectures.—Dr. Chester S Keefer Boston; delivered the Porter Lectures March 39-31 at the University of Kansas School of Medicine Lawrence and Kansas City. His subjects were " Penicillin in the Medical and Surgical Practice," "Antibacterial Agents from Microbes" and " Streptomycin in the treatment of infections

Appoint Professor of Pathology. — Dr. Robert E. Stowell, formerly assistant professor of pathology at Washington University School of Medicine, St. Louis, has been appointed professor of pathology and oncology at the University of Kansas School of Medicine, Lawrence-Kansas City, effective March 1. Dr. Stowell received his M.D. degree from Stanford University School of Medicine, San Francisco, in 1941 and his Ph.D. degree from Washington University School of Medicine, where he has been on the staff since 1940.

MASSACHUSETTS

Nye Memorial Study.—The Massachusetts Division of the American Cancer Society, Inc. has granted Massachusetts General Hospital about $2,500, donated in memory of the late Dr. Robert N. Nye. The sum will be used to initiate and at least partly support the Robert Nason Nye Memorial Study. This study, a long-desired project of the x-ray department of the hospital where Dr. Nye served his internship, is concerned with the evaluation of changes in the peripheral blood correlated with known amounts of exposure to radiation sustained by the employees and staff of the x-ray department. Among other subjects to be studied is the incidence of leukemia among workers.

NEW YORK

Buffalo Alumni Clinical Day—The annual Clinical Day of the Alumni Association of the university of Buffalo School of Medicine, Buffalo, will be held April 17 at the Hotel Statler, Buffalo. Subjects under discussion include massive hemorrhage from peptic ulcer, management of gynecologic conditions, early recognition of pulmonary disease and diagnosis of respiratory symtoms in infancy. Class reunions will be held April 16 for the classes of 1883, 1888, 1892, 1898, 1903, 1908, 1913, 1923, 1928, 1933, 1938, and 1943.

New York City

Residencies Available.—The psychiatric division of the Kings County Hospital, Brooklyn, has a number of residents' positions available for appointment. This new psychiatric hospital is affiliated with the Long Island College of Medicine. Opportunities are available for degrees in graduate work during the residency. The standard resident's salary is $1,560 with maintenance. For information address the director of psychiatry, Dr. Sam Parker, Kings County Hospital, Albany Avenue and Winthrop Street, Brooklyn 3.

PENNSYLVANIA

Personal. — Dr. Charles C. Collester, Spencer, has retired from medical practice after thirty-five years of service to his community.

Society News.—At a meeting of the Reading Eye, Ear, Nose and Throat Society and the Diplomates Association of Berks County Physicians, Dr. Leandro M. Tocantins, Philadelphia, spoke on "The Critical Appraisal of Available Methods for the Control of Hemorrhagic States.

Philadelphia

Phi Lambda Kappa Lecture.—Dr. Lester R. Dragstedt Chicago, will deliver the second annual Phi Lambda Kappa Fraternity Lecture April 14 at 8:30 p.m in the Klahr Auditorium of thr Hahnemann Medical College on 'Vatogomy in the treatment of Peptic Ulcer."

Dr. Long Receives Honorary Degree. — Dr. Esmond R. Long, director; Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis, University of Pennsylvania, received the honorary degree of doctor of science at a convocation in the various medical divisions of the university, March 6. Dr. Long has just returned from Germany, where he served on an Army commission for the study of tuberculosis in the American zone.

TENNESSEE

Annual Meeting of State Association.—The Tennessee State Medical Association will hold its annual meeting at the Maxwell House, Nashville, April 13-15 under the presidency of Dr. Franklin B. Bogart, Chattanooga. The tentative program lists the following guest speakers:

Axel N. Arneson, St. Louis, Prognosis in Carcinoma of the Uterine Cervix.
Byrl R. Kirklin, Rochester, Minn.Diaphragmatic Hernia.
Charles F. McKhann, Cleveland, Chronic Malnutrition in Children.
John Caffey, New York, Congenital Obstruction of the Alimentary Tract.
Fred V. Hein, Ph.D., Chicago, Physical Education and Athletics as Related to School Health.

The banquet in honor of President Bogart will be given April 14. Mr. Mac F. Cahal, Chicago, will speak on " Caution! Curves Ahead." The Woman's Auxiliary will meet April 13-15 with headquarters at the Hermitage.

TEXAS

Lectures by Dr. Best.—Dr. Charles H. Best, Toronto, Canada, delivered the annual Phi Beta Pi Lecture at Baylor University College of Medicine, Houston, March 22 on "The Pancreas as the Guardian of the Liver"; on March 25 he delivered the Albert Surman Memorial Lecture under the auspices of Phi Beta Pi Medical Fraternity at the University of Texas Medical Branch, Galveston. He also gave a series of four lectures on the physiology of carbohydrate and fat metabolism at Baylor University during the week.

Conference Pediatric.—A Pediatric postgraduate conference will be held at the University of Texas School of Medicine, Galveston, April 12-17 under e auspices of the university's Child Health Program and in cooperation with the Maternal and Child Health Division of the Texas State Board of Health. The subjects of the program on Monday will be the problem of infantile diarrhea and heart disease; on Tuesday poliomyelitis, and physiology of the newborn; on Wednesday, speech and speech correction: on Thursday, infant feeding and infectious diseases (continued) and on Saturday papers will be presented on adenoid pathology, deafness and acute poisonings.

WEST VIRGINIA

Meeting on Industrial Medicine.—A meeting, of physicians and nurses engaged in industrial work, sponsored by the industrial committee of the Kanawha Medical Society, will be held at the Ruffner Hotel in Charleston April 11. Sessions will begin at 10:20 a.m. The program follows:

Ralph S. McLaughlin, Charleston, Chemical Injuries to the Eye.
E. Hunter Boggs, Charleston, Industrial Skin Lesions.
Theodore P. Mantz, Charleston, Methods of Skin Grafting.
Walter G. Putschar, Charleston, Dangers and Pitfalls in Intravenous Medication.
J. Huber Wagner, Pittsburgh, Present Treatment of Wounds.
Bert Bradford Jr., Charleston, Treatment of Abdominal Injuries.
Henry M. Escue, Charleston, W. Va., Treatment of Urinary Bladder and Urethral Trauma.
Dr. J. Huber Wagner, Pittsburgh, will meet with members of the college at noon to discuss organizational matters.

WISCONSIN

Cancer Symposium in Milwaukee.—The Medical Society of Milwaukee County and the Milwaukee Division of the American Cancer Society, Inc. will present their second annual Cancer Symposium April 8-9 in Milwaukee. A clinic will be held at the Milwaukee Cancer Detection Center, and an address will be given at Marquette University School of Medicine auditorium at 8 p.m. followed by a panel discussion on "Management of the Late Cancer Patient". After the clinic group meeting at the Milwaukee County Hospital April 9 the following program, to be given at 2 p.m., has been arranged:

Arthur C. Allen, New York, Practical Fundamentals of the Nevi and Melanoma Problems.
J. Barrett Brown, St. Louis, Cancer of the Lip and Mouth.
Leon Schiff, Cincinnati, When Does Jaundice Mean Cancer?
Vernon C. David, Chicago, Indications for Surgical Procedures in Cancer of Rectum.

At 2 p.m. April 10 Dr. Allen will conduct a slide seminar on dermatologic lesions. All interested physicians are invited to attend.

GENERAL

Annual Specialists' Meeting.—The American Laryngological, Rhinological and Otological Society, Inc. will hold its annual meeting April 7-9 at Chalfonte-Haddon Hall, Atlantic City, N. J., under the presidency of Dr. Lyman G. Richards, Brookline, Mass. Physicians invited to take part in discussions include Arthur M. Olsen, Rochester, Minn.; Hallowell Davis, St. Louis; Stuart C. Cullen, Iowa City, and Morris Fishbein, Chicago.

Students International Clinical Congress.—The International Union of Students and the British Medical Students Association invites a delegation of fifteen medical students from the United States to a Students' International Clinical Congress of two hundred delegates in England July 6-24, 1948. Lectures and clinical teaching will be held in London, Oxford and Birmingham. Transportation and housing will be arranged at minimal expense. For information write Anna P. Cort, Chairman, Committee on International Teaching Congress, AIMS, Boston University School of Medicine, 80 East Concord Street, Boston.

Southeastern Surgical Congress.—The sixteenth annual postgraduate assembly of the Southeastern Surgical Congress will be held in Hollywood, Fla., April 5-8 at the Hollywood Beach Hotel, under the presidency of Dr. Herbert Acuff. The papers to be presented are intended to make up an inclusive refresher course. The C. Jeff Miller Lectureship will be presented Monday, 8 p.m., by Dr. R. L. Sanders, University of Tennessee College of Medicine, Memphis, on "Palliative Treatment for Carcinoma of the Pancreas." The Southeastern Surgical Congress recently purchased the old John P. Huntley home, 1439 Peachtree Street, Atlanta, Ga., as general headquarters for the congress.

Meeting of Laryngological Association.—The annual meeting of the American Laryngological Association will be held at the Homestead, Hot Springs, Va., April 14-15 under the presidency of Dr. Arthur W. Proetz, St. Louis Physicians presenting papers by invitation are:

Harold I. Lillie and Clifford F. Lake, Rochester, Minn., Mucoceles, Pyoceles and Cystic Degenerative Lesions of the Mucous Membrane of the Frontal and Ethmoidal Paranasal Sinuses.
Ko K. Chen, Indianapolis, Aliphatic Versus Aromatic Amines as Vasoconstrictors.
Edwin N. Broyles and Edward M. Walzl, Baltimore, Postoperative Course of Subperichondral Total Laryngectomies.

The president's reception at 6 p.m. April 14 will be followed by the annual banquet for fellows only.

MARRIAGES

JOHN KINGSLEY LATTIMER to Miss Jamie Elizabeth Hill, both of Jackson Heights, N.Y., January 23.

HERMAN N. EISEN, Brooklyn, to NATALIE ARONSON of New York, in February.

HARRISON CLINTON FLOURNOY, Warwick, Ga., to Miss Altalene Ethel Russell of Eufaula, Ala., in Shellman, Ga., February 2.

CRAIG WILLIAMSON, Upland, Calif., to Miss Betty Lucile Payne of Los Angeles.

JAMES SAMUEL GARNER Jr., Plant City, Fla., to Miss Mary Elizabeth Arnold of Washington, D.C., at Falls Church, Va., February.

JOHN JOSEPH McGILLICUDDY, Lynn Mass., to Miss Mary Louise Godvin of Orange, N.J., at Chestnut Hill, Mass., recently.

GEORGE LEGARE KERRISON to Miss Mildred Virginia Burdashaw, both of Charleston, S.C.; February 10.

Deaths

Gilbert Seymour Osincup ⊕ Orlando, Fla.; born in Cedar Rapids, Iowa, Jan. 17, 1894; University of Tennessee College of Medicine, Memphis, 1916; past president of the Florida Medical Association and of the Orange County Medical Society; fellow of the American Academy of Pediatrics; specialist certified by the American Board of Pediatrics; served with a British infantry regiment and the Royal Air Force during World War I and was decorated by King George V of England with the British Military Cross; in 1946 retired as senior surgeon, U. S. Public Health Service reserve, and during World War II served in the European and Middle Eastern theaters of operation, assigned to British Occupational Forces in Greece; formerly served on the Florida Defense Council as chairman of health and housing and as chairman of selective service for Orange County; received the certificate of honor from the Florida Medical Association and the Selective Service Medal from President Truman; served as president of the medical staff of Orange Memorial Hospital, where he had been chief of the pediatric service for many years; died Nov. 26, 1947, aged 52, of carcinoma of the lungs.

Fred Towsley Murphy, Grosse Pointe, Mich.; born in Detroit Oct. 23, 1872; Harvard Medical School, Boston, 1901; at one time on the faculty of his alma mater and professor of surgery at the Washington University School of Medicine in St. Louis; member of the American Medical Association, serving as a delegate from Massachusetts in 1911; member of the Massachusetts Medical Society, American Surgical Association and the Society of Clinical Surgery; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; during World War I a commanding officer of Base Hospital 21 in France; awarded the Distinguished Service Medal for supervising evacuation of First Army casualties, and later became director of medicine and surgery for the American Red Cross; in 1921 became a brigadier general in the U.S. Army reserve; at one time on the staffs of the Infants' Hospital in Boston and the Barnes Hospital in St. Louis; member of the board at Harper Hospital in Detroit; a trustee of Phillips Andover Academy in Andover, Mass.; died January 10, aged 75, of bronchopneumonia.

Archibald Alexander MacLachlan ⊕ Pittsburgh; born in Claysville, Pa.; in 1874; University of Pennsylvania Department of Medicine, Philadelphia, 1900; served on the faculty of the University of Pittsburgh School of Medicine; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and of the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; affiliated with the Eye and Ear and Southside hospitals; died at his home in Library, Pa., Dec. 2, 1947, aged 73.

Joseph Moses Jr., Northfield, Minn.; born in Herman, Minn. Nov. 17, 1887; University of Minnesota Medical School, Minneapolis, 1914; member of the American Medical Association; past president of the Rice County Medical Society; served during World War I; chairman of the Rice County Public Health Association, and during World War II served as medical examiner for war services; member of the board of education; vice president of the Northfield National Bank; died recently, aged 60, of coronary thrombosis.

Charles Fisher Lippe, New York; New York University College of Medicine, 1939; diplomate of the National Board of Medical Examiners; served as a lieutenant commander in the medical corps of the U. S. Naval Reserve during World War II; resident at Veterans Administration Hospital in Fort Logan, Colo.; interned at the Hospital for Joint Diseases in New York; formerly resident at Sea View Hospital in Staten Island and Mount Sinai Hospital in New York; died recently, aged 33, of coronary disease.

George Everet Alexander, Castle Rock, Colo.; University of Buffalo School of Medicine, 1885; member of the American Medical Association; served as county health officer; died recently, aged 88.

Joseph Long Alexander, Staunton, Va.; University of Virginia Department of Medicine, Charlottesville, 1900; member of the American Medical Association; affiliated with the Kings' Daughters' Hospital, where he died Dec. 16, 1947, aged 70, of chronic myocarditis.

Clayton Witters Bartlett, Bennington, Vt.; University of Vermont College of Medicine, Burlington, 1888; member of the American Medical Association; fellow of the American College of Surgeons; died Dec. 23, 1947, aged 82, of arteriosclerotic heart disease.

William Alonzo Bockoven ⊕ Cresco, Iowa; State University of Iowa College of Medicine, Iowa City, 1921; fellow of the American College of Surgeons; member of the school board; affiliated with Decorah Hospital in Decorah and St. Joseph Mercy Hospital; died Dec. 30, 1947, aged 53, of coronary thrombosis.

James Marshall Braden, Lafayette, Colo.; Hospital College of Medicine, Louisville, Ky., 1891; at one time health officer of Carbondale; served during World War I; twice mayor of Lafayette; died in the Community Hospital, Boulder, Nov. 29, 1947, aged 79.

Edgar Marx Braun, Irvington, N. J.; Duke University School of Medicine, Durham, N.C., 1936; member of the American Medical Association; diplomate of the National Board of Medical Examiners; died in East Orange Dec. 26, 1947, aged 38, of coronary occlusion.

William O. Burbank, Gaines, N.Y.; University of Buffalo School of Medicine, 1889; formerly a member of the school board, health officer and coroner of Pavilion; died in St. Jerome Hospital, Batavia, Dec. 24, 1947, aged 87, of arteriosclerosis and bronchopneumonia.

William Alvin Camp ⊕ Cullman, Ala.; Emory University School of Medicine, Atlanta, 1941; interned at the Employees' Hospital of the Tennessee Coal, Iron and Railroad Company in Fairfield; served during World War II; affiliated with the Cullman Hospital; died Nov. 29, 1947, aged 32, of coronary thrombosis.

Benjamin L. Carter, Covington, Va.; Baltimore Medical College, 1893; member of the American Medical Association; served as secretary of the Alleghany County Board of Health; chairman of the board of directors of the Citizens National Bank; died Dec. 7, 1947, aged 82, of coronary thrombosis.

Andrew Jackson Cooper, Midland, Texas (licensed in Texas under the Act of 1907); member of the American Medical Association; during World War I on the examining board of Taylor County, where he had been county health officer; at one time served as local surgeon for the Missouri, Kansas and Texas and the Frisco railroads; died Dec. 24, 1947, aged 72, of cardiovascular disease.

Noah Albert Davidson, Harlingen, Texas; Baylor University College of Medicine, Dallas, 1911; member of the American Medical Association; died Dec. 10, 1947, aged 66.

Roy Edgar Emanuel ⊕ Chickasha, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1926; served as vice president of the Oklahoma State Medical Association; affiliated with the General Hospital; died Dec. 6, 1947, aged 46, in an airplane accident.

Jack Albert Churchill King, Vevay, Ind.; University of Michigan Medical School, Ann Arbor, 1933; member of the American Medical Association; past president of the Switzerland County Medical Society; died Dec. 6, 1947, aged 41.

John Elwood Knight ⊕ Warrenton, Va.; Medical College of Virginia, Richmond, 1908; formerly vice president of the Medical Society of Virginia; served as vice president of the Fauquier County Medical Society; died Dec. 30, 1947, aged 64, of heart disease.

Arthur Dillard Harmon Little, Thomasville, Ga.; Medical Departmentof Tulane University of Louisiana, New Orleans, 1908; member of the American Medical Association and of the Southeastern Surgical Congress; fellow of the American College of Surgeons; for many years a member of the board of education; served during World War I; affiliated with the Archbold Memorial Hospital, where he died recently, aged 66, of coronary thrombosis.

Clarence Homer Lefever, Erie, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; member of the American Medical Association; past secretary and president of the Erie County Medical Society; chief of medical service at St. Vincent's Hospital, where he died January 11, aged 73, of a fracture of the vertebrae and subacute lateral sclerosis.

Benjamin Meyer Levine, Forest Hills, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1906; member of the American Medical Association; died recently, aged 62, of coronary disease.

Daniel W. Lowe, Woodsfield, Ohio; Starling Medical College, Columbus, 1903; member of the American Medical Association; formerly county health commissioner; died Dec. 2, 1947, aged 72, of heart disease.

Joseph Luff, Independence, Mo.; Kansas City (Mo.) Hahnemann Medical College, 1903; also a minister; died January 6, aged 95.

Bernard Norton MacLafferty, Malone, Wash.; American Medical Missionary College, Battle Creek, Mich., and Chicago, 1904; died Dec. 8, 1947, aged 69, of coronary thrombosis.

John Archibald MacMillan, Brookline, Mass.; Hahnemann Medical College and Hospital of Philadelphia, 1906; formerly assistant professor of clinical dermatology at the Boston University School of Medicine; member of the New England Dermatological Society; died Dec. 19, 1947, aged 64, of cerebral hemorrhage.

Fred Wasco Maxey, Superior, Neb.; Central Medical College of St. Joseph, Mo., 1905; veteran of the Spanish-American War; died Dec. 7, 1947, aged 71.

Charles C. Meade, Cincinnati; Pulte Medical College, Homeopathic, Cincinnati, 1890; died recently, aged 85.

Clarence Beacom Millhoff ⊕ Johnstown, Pa.; Jefferson Medical College of Philadelphia, 1897; died recently, aged 74.

George A. Morley, Crookston, Minn.; Rush Medical College, Chicago, 1897; past president of the public school system; member of the American Medical Association and of the American Academy of Ophthalmology and Otolaryngology; specialist certified by American Board of Ophthalmology; affiliated with Bethesda and St. Vincent's hospitals; died recently, aged 79, of heart disease.

Ernst H. Schoen, Jackson, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1895; member of the American Medical Association; died Nov. 23, 1947, aged 74, of cerebral hemorrhage.

Christian Ulrich Senn ⊕ Ripon, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1906; served during World War I; examining physician for the Selective Service Board during World War II; affiliated with Ripon Municipal Hospital, where he died Nov. 28, 1947, aged 69, of cerebral hemorrhage.

Walter Lewis Tanner, Newark, N. J.; Boston University Medical School, 1919; found dead in Philadelphia Dec. 16, 1947, aged 54.

Ralph Waldo Thompson Cornwall-on-the Hudson, N.Y.; New York Homeopathic Medical College and Flower Hospital in New York, 1908; health officer; died January 12, aged 71, of carcinoma.

Charles Burleigh Thomas, Cleveland; Cleveland Medical College, Homeopathic, 1891; served in France during World War I; died in East Cleveland Dec. 30, 1847, aged 81.

James Edward Trotman, Oklahoma City, Okla.; Meharry Medical College, Nashville, Tenn., 1936; died in the Massachusetts Memorial Hospital, Boston, Dec. 17, 1947, aged 49, of rapidly progressive hypertension.

William Miles Wallis Maryville, Mo.; Central Medical College of St. Joseph, Mo., 1903; served during World War I; affiliated with St. Francis Hospital; died Dec. 12, 1947, aged 67, of myocarditis.

Albert Davis Webb, Williamstown, Ky.; Medical College of Ohio, Cincinnati, 1886; also a druggist; died Dec. 19, 1947, aged 85, of pneumonia.

Hyman Wechsler, Los Angeles; Medical College of Indiana, Indianapolis, 1883; died recently, aged 90.

Edgemont David Welsh, Grand Rapids, Mich.; Michigan College of Medicine and Surgery, Detroit, 1905; died Dec. 5, 1947, aged 63, of coronary thrombosis.

Edward Augustus Williamson, Stamford, Conn.; Bellevue Hospital Medical College, New York, 1886; served during World War I; member of the staff of Stamford Hospital, where he died January 6, aged 83, of a fractured hip and hypostatic pneumonia.

Thomas Valentine Williamson, Norfolk, Va.; University of Virginia Department of Medicine, Charlottesville, 1908; served during World War I; affiliated with the Norfolk General and Leigh Memorial hospitals; died Dec. 29, 1947, aged 63, of heart disease.

Leon Gilbert Woodford ⊕ Everett, Wash.; Denver and Gross College of Medicine, 1909; fellow of the American College of Chest Physicians; formerly city physician; chairman of the advisory board of the Salvation Army; affiliated with Everett General Hospital and Providence Hospital, where he died Dec. 28, 1947, aged 65, of hypertension and cardiovascular renal disease.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Feb. 27, 1948.

Public Health in France Since the Liberation

In a press conference of January 15, Dr. Cavaillongeneral director to the Ministry for Public Health and Population, emphasized that, though being less serious than in 1943 and 1944, the situation with regard to public health has not improved greatly since 1946. Health examinations of school children and adolescents show many deficiencies resulting from undernourishment due to food shortages

Epidemic Diseases Under Control

Since 1945, there have been only 395 cases of exanthematous typhus, all but four or five in prisoners or deportees returning from Germany. A small outbreak of plague (13 cases) was rapidly checked by vaccination of the inhabitants of Ajaccio. Scarlet fever was reduced from 30,000 cases in 1946 to 4,000 in 1947, and measles from 30,000 in 1946 to 16,000 in 1947. Diphtheria was increased from 17,000 cases in 1938 to 45,000 in 1945, and then reduced to 9,700 in 1947. Poliomyelitis was reduced to 1,148 cases in 1947 and 46 cases of smallpox occurred. No case of cholera was imported to France from epidemic areas in Asia. Syphilis is also showing notable decrease.

Tuberculosis

In 1947 figures for tuberculosis were the lowest ever recorded, 89 cases per hundred thousand inhabitants. Numerous deaths during the occupation reduced the global number of patients with active infection: nevertheless, there is a decrease due to early detection, isolation of the patient and treatment. Tuberculosis is still serious because of underfeeding in cities, the difficulty of obtaining sufficient food in sanatoriums and the present impossibility of expanding sanatorium facilities.

Infant Mortality

Infant mortality increased during the war and the occupation, reaching a maximum in 1945 with a rate of 10.8 per cent. Regression is noted for 1947 (6.5 per cent). This rate is still high compared with that of other countries, as nearly 100,000 children under 1 year of age die every year in France. Results are due to a large number of medical and sanitary conditions, most of which can be corrected. Improvement is expected in the coming year.,

General Mortality

The prewar mortality rate in France was 1.57 per cent; it rose to 2.04 in 1944 and dropped to 1.34 in 1947. France as a whole requires continued improvement of health measures and war increased the need for better sanitary facilities and equipment. Thirteen new hospitals are now under construction and others, which were in course of construction before the war, will soon be finished.

Death of Philippo Pagniez

Philippe Pagniez died at the age of 74. As a Member of the National Academy of Medicine, he took part in the scientific direction of *La presse medicale*. Dr. Pagniez's main work, in the field of neurology, is epilepsy; in his famous book on that subject he brought to the fore the two factors, one nervous, the other humoral, which intervene in the pathologic processes of this disease. By patient research and observation he demonstrated the modification in the composition of the blood in epileptic persons, modifications brought about by a hemoclastic crisis-anaphylactic shock, which can set off authentic convulsive paroxysms. He discovered the essential cause of the guinea pig's epilepsy, described by Brown-Sequard. Pagniez is well known for his hematologic work, including that on hemolysins and agglutinins. His work in the fields of allergy and anaphylaxis has contributed greatly to the solution of the problem of allergy of the digestive tract. With Pasteur Vallery-Radot, he has shown the part played by the humoral imbalance in the genesis of migraine.

Miscellaneous

Professor B. Houssay, of Buenos Ayres, Doctor Honoris Causa of the Paris University, Nobel prize winner, delivered a lecture at the Paris Faculty of Medicine on experimental diabetes. Professor E. Cruz-Coke of Santiago, recently made Doctor Honoris Causa of the Paris University, delivered a lecture on arterial hypertension of renal origin at the Paris Faculty of Medicine.

The Medical Days of the Propedeutic Clinics of the Broussais Hospital will take place in Paris, May 21-23 under Professor Pasteur Vallery-Radot. For information apply to Professor J. Hamburger, 29 Boulevard de Courcelles, Paris.

The First International Congress on Surgical Films, organized by "Art and Science", took place in Paris, April 7, 1948, at "Mutualite" Palace.

BELGIUM

(From Our Regular Correspondent)

Feb. 28, 1948.

Biliary Radiomanometry

At the Belgian Society of Gastroenterology, Caroli of Paris presented his six years' experience with radiomanometry, which combines the technics to measure the pressure necessary for the perfusion of the biliary passages when drains have been placed after surgical intervention and those which are used for contrast mediums that are introduced for the radiographic study of the biliary passages.

The author employs "tenebryl" (aiodine (preparation) as a contrast medium. The zero point of the manometer is placed on the level of the choledochoduodenal juncture. He visualizes the introduction of the contrast liquid in the gallbladder, measures the pressure of filling of the latter and takes a picture Then he measures the pressure necessary to pass the sphincter of the gallbladder; this pressure varies between 12 and 14 cm. of water.

In the normal subject, as soon as the sphincter of the gallbladder is passed, the biliary tree is filled without stoppage up to the duodenum. When the biliary tree is thus filled, it is advisable to take serial pictures. One sees then the movements of closing and opening of the sphincter of Oddi, giving rise to veritable ejaculations of contrast liquid into the duodenum. The pressure required to pass this choledochoduodenal juncture is between 10 and 12 cm. of water, that is to say, lower than that required for the passage of the vesical sphincter. If it is necessary to reach a pressure of 20 cm. of water and more, it is an indication of an organic lesion and if instead of employing surgical treatment only a cholecystectomy is made, the latter will be followed by pain.

Correspondence

MALIGNANT EXOPHTALMOS

To the Editor:—In view of the general air of pessimism which permeates the approach to malignant exophthalmos, an attitude shared by your contributor Dr. Willard O. Thompson (THE JOURNAL, January 31, p. 314) in his recent delightful article, perhaps it is worth while briefly to record 2 cases of successful treatment.

The first patient was a Royal Air Force flight sergeant pilot aged 28, who eight years before had had an operation for a large simple goiter. He was referred for increase in weight, shortness of breath, lethargy, slowing of thought and moderate exophthalmos. He presented classic features of early myxedema: a skiagram of the chest showed tracheal compression from a substernal goiter: the goitrous mass was resected and thyroid sicca (B.P.) ½ grain (0.03 Gm.) three times a day and Lugol's solution 5 minims (0.31 cc.) three times a day were prescribed. His general condition improved immensely: the exophthalmos receded rapidly, and within three months of his first being seen he was considered fit enough to return to operational flying duty. Unfortunately, the exigencies of the service prevented full follow-up, but when last seen he was well and symptom free, taking 1½ grains (0.10 Gm.) of thyroid sicca daily.

The second patient was a girl aged 19 who was referred with a presumptive diagnosis of exophthalmic goiter. She had suffered from bronchial asthma since childhood and had always been of nervous disposition. There was moderate exophthalmos: the thyroid was diffusely enlarged to about thrice its normal size, and there were pronounced tremors of the extended fingers. She had, however, recently gained weight and the hands, even on a warm day, were abnormally cold. Psychologic history revealed personality inadequacy with fairly severe emotional conflicts and features of chronic anxiety. Accordingly the diagnosis was "chronic anxiety state with hypothyroidism and thyrotropic exophthalmos". She was admitted to hospital and given thyroid sicca 5 grains (0.32 Gm.) three times a day and Lugol's iodine 5 minims (0.31 cc.) three times a day. Within a week the exophthalmos had noticeably diminished and the thyroid had reverted almost to its normal size and consistency. Shortly afterward, she was discharged to outpatient care and seen at regular intervals, continuing to take 1 grain (0.06 Gm.) of dried thyroid daily. A year after her first being seen the eyes were only slightly prominent, and no abnormality of the thyroid was palpable. Further, her asthmatic attacks were much diminished in severity and frequency. Her dose of thyroid sicca had now been reduced to ½ grain (0.03 Gm.) daily and the iodine had been omitted.

Both of these patients were seen within a few days of their first noticing the prominence of the eyes, and in both treatment was begun early. This may account for the good results obtained and should encourage one to bear this possible diagnosis in mind when seeing cases which at first sight suggest Graves' disease, diffuse goiter with hyperthyroidism. The second patient had already been seen by several physicians who had accepted the diagnosis of primary thyrotoxicosis. It is probable that, if corresponding lines of treatment had been followed, the ultimate results would not have been so good. As it was, the final outcome in both instances should perhaps encourage us to discard the rather terrifying name which has been attached to this condition.

J. DONALDSON CRAIG, M.D.
72 Westbourne Terrace,
London W. 2, England.

NOTE ON THE INCEPTION OF THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

To the Editor:—In 1890 while studying abroad I received letters from my father, Dr. Aaron Friedenwald, professor of ophthalmology in the College of Physicians and Surgeons of Baltimore. The following excerpts throw an interesting light on the creation of the Association of American Medical Colleges.

Excerpt from letter dated Jan. 30, 1890:

> Dr. Cordell has stirred up the profession in Baltimore in reference to the Colleges' raising their standard. The University of Maryland a few weeks ago announced that from the next session a compulsory three year graded course would be adopted. Dr. Latimer and I were appointed a committee to represent the College of Physicians and Surgeons at a meeting (of the faculty) held last week. I took the ground that the simple adoption of a three years' course by the colleges of this city might not accomplish at all what the profession seemed so much to desire. I could imagine a result which would attract the students, who would be prevented by such an action to come to Baltimore, to colleges whose requirements were not so high. In such a case, the profession at large would not be benefited, but very probably the college might be made to suffer to an extent that would greatly endanger its existence. I therefore preferred that a circular should be sent to all colleges of the United States having a two years' course (asking them) to send delegates to the meeting to take place in Nashville (Tenn.) in May next, when the American Medical Association will meet there, for the organization of an Association of American Medical Colleges, whose purpose it shall be to elevate the standard by a concert of action; the delegates sent to this meeting to be instructed to vote for a three year graded course. I think the time an opportune one to bring about this result. It is true that a similar effort ended in failure about twelve years ago. The *vis a tergo* in the shape of the state medical examinations, which so many states have adopted, did not exist at that time, and it seems to me the best way out of the difficulty. My proposition met with favor, and tomorrow there will be another meeting to consider the circular, the preparation of which has been entrusted to Dr. Cordell. If this effort will be successful, it will be a great achievement, and our college will have the credit of first proposing a practical method of disposing of this vexed question.

Excerpt from letter dated Feb. 9, 1890:

> On last Thursday a meeting of the representatives of the various medical colleges in Baltimore took place and my proposition to send a circular to all medical colleges in the United States for a meeting in Nashville in May, to raise the standard of medical education by a concerted movement, was adopted. I hope that this will lead to something.

The call for the meeting went out over the signatures of A. Friedenwald, chairman, and E. F. Cordell, secretary. The former was elected vice chairman of the newly formed association.

HARRY FRIEDENWALD, M.D., Baltimore.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Food and Drug Acts: Evidence of Misbranding of Device.—The United States filed a libel against sixteen Sinuothermic machines, owned or manufactured by the claimant, on the ground that they were misbranded when shipped in interstate commerce. The misbranding was alleged to have consisted of printed matter accompanying them which represented that the machines had a therapeutic value in the diagnosis and treatment of stated diseases of man, whereas the devices were not effective for such purposes. From a judgment of condemnation and destruction, the claimant appealed to the circuit court of appeals, fifth circuit.

The federal law prohibits the introduction into and the receipt in interstate commerce of any food, drug, device or cosmetic that is adulterated or misbranded and provides for seizure and condemnation of such. It is not denied that these machines were devices within the act. A drug or device shall be deemed to be misbranded, within the federal act, if its labeling is false or misleading in any particular. The term "labeling" means all labels and other written, printed or graphic matter on any article or any of its containers or wrappers or accompanying such article. The last three words, said the court of appeals, are critical here. They make the term "labeling" broader than "label," which includes only what is displayed on the immediate container of an article. How much broader? The sixteen devices in question were shipped in several consignments from a place in Florida to a designated place in Ohio. The first three shipments went forward and were received by the proper party and put to work in his medical practice several weeks before any leaflets were sent. They did not accompany any of the devices while they were in interstate commerce. The last of the shipments went forward three weeks after the leaflets and was not accompanied by them. Accompany, said the court, means to go along with. In a criminal and forfeiture statute the meaning cannot be stretched. Furthermore, it may be doubted, said the court, that the printed matter is in its nature a labeling for the machines. It looks like a small newspaper, entitled "The Road to Health, by Dr. Fred Urbeteit. Every subject pertaining to Health, Doctoring and Nursing is being taught at the College of Sinuothermic Institute, Inc., 307 West Euclid Ave., Tampa, Florida." To the left of this heading is a picture of Dr. Fred Urbeteit, president of Sinuothermic Institute, Inc., and to the right an attractive picture of the institute and its grounds. Fifteen columns of fine print are below, consisting of testimonials and case histories of patients who had been treated at the institute by Dr. Urbeteit, with unstinted praise of both. The Sinuothermic machine is mentioned and praised as an instrument of diagnosis and treatment, but there is no description or picture of the machine, no explanation of its operation and no suggestion that it is for sale. The whole thing, said the court of appeals, appears to be an advertisement for the institute and Dr. Urbeteit, rather than something to accompany machines. Whether we ought to hold it a labeling of these machines if shipped simultaneously with them, the court continued, may be doubted. But if it could be called labeling, it is not proved by the present skimpy evidence that it accompanied the machines or any one of them while they were in interstate commerce.

The claimant vigorously contended that all he had said in "The Road to Health" was true. He offered in his claim, since no employee of the United States and only a few practitioners whom he had instructed, had any actual knowledge of his machine, to conduct a series of tests of it in cooperation with practitioners of medicine, osteopathy, chiropractic and naturopathy approved by the court, preferably on persons previously treated by medical practitioners without success, they to be examined before and after the test by physicians appointed by the court during such period as the court should fix, the physicians' determination of the results to be evidence in the case. This was not done. Dr. Urbeteit at least seems convinced of the efficacy of his machine, said the court of appeals. He testified in detail as to each case mentioned in "The Road to Health." He had present 30 of his patients, whom he offered as witnesses to the benefits they had received, many of them being those mentioned in "The Road to Health." The trial judge refused to hear them on the ground that, being laymen, they could not testify as to what was the matter with them and consequently could not say what they were relieved from, and that the diagnoses testified to by Dr. Urbeteit could not be accepted because he rested them on the use of his machine which the government's witnesses, who were men of high standing in medicine and in the electrical arts, had testified could not do what Dr. Urbeteit claimed. These rulings, said the court of appeals, were error. One was based on the idea that Dr. Urbeteit had made his diagnoses solely on the indications of the machine. But his testimony as a whole was that he used all known methods of diagnosis, that the machine did not indicate any particular disease but only located the spot where the abnormal tissue was, and that it was then a matter of judgment as to what the disease was. He only claimed the machine to be an aid in diagnosing. The patients themselves, said the court, could certainly know whether their external symptoms abated and their pains ceased. Urbeteit, being a licensed doctor of some twenty years' practice, could express expert opinions. The judge might, continued the circuit court of appeals, after hearing all the evidence, prefer the expert opinions of the government witnesses to those of Dr. Urbeteit, even as against the facts to which he and his witnesses might swear, but the judge should have heard all the competent testimony before making up his mind. The most eminent physicians and scientists have in the past erred in their opinions, and opinions generally must yield to well proved contrary facts. The case, the court concluded, ought to have been more fully tried. Accordingly, the judgment in favor of the government was reversed and the cause was remanded for further proceedings.—*Urbeteit v. United States, 164 F. (2d) 245 (1947).*

Medical Motion Pictures

NEW MOTION PICTURE ADDED TO A.M.A. LIBRARY

Surgery in Chest Diseases. 16 mm., black and white, sound, 1,400 feet (one reel), showing time forty-five minutes. Prepared in 1945 for the British Ministry of Information, London, England. Produced by G. B. Instructional, Ltd., London. Procurable on loan from the American Medical Association, Committee on Medical Motion Pictures, 535 North Dearborn St., Chicago, 10.

This motion picture portrays the diagnostic, surgical and rehabilitation technics in a large hospital for diseases of the chest. In particular, it follows one patient through all these procedures from the time that a cancer of the lung is recognized on a routine roentgen examination of the chest until he returns to work on an occupation suited to his convalescent regimen. This patient was in the hospital many weeks longer than necessary. Much of this time could well have been spent at home; his rehabilitation could have been conducted in an outpatient clinic and in various normal activities as well as in rehabilitation hospitals and elaborate occupational therapy shops.

Throughout the film one is impressed with the excellent organization of the subject and with the thoroughness and efficiency of the surgical management. The photography is excellent. This production would be suitable to those interested in the organization of public medical facilities. It would be of value to the general practitioner as a demonstration of the present status of surgical management of formidable thoracic conditions and also to the specialist in thoracic surgery as a demonstration of the particular technics in this clinic.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American Journal of Clinical Pathology, Baltimore

17:925-992 (Dec.) 1947

Lymphocytic Infiltration and Hemopoiesis in Liver of Tumor Bearing Hamsters. Margaret A. Kelsall and E. D. Crabb.—p. 925.

Effect of Intravenous Administration of Dextran, Macromolecular Carbohydrate, in Animals. M. Goldenberg, R. D. Crane and H. Popper. - P. 939

Verification Antigen for Identification of Pseudosyphilitic Reactions of Serum. H. Hecht.—p. 949.

American Journal of Ophthalmology, Cincinnati

30:1485-1622 (Dec.) 1947

Observations on Pityrosporum Ovale in Seborrheic Blepharitis and Conjunctivitis. J. S. Gots, P. Thygeson and M. Waisman.—p. 1485.

Conjunctivitis with Membrane Formation. M. J. Hogan.—p. 1495.

Studies on Physiology of Eye Using Tracer Substances. R. O. Scholz, D. B. Cowie and W. S. Wilde.—p. 1513.

Sodium-Vapor Lamp and Its Use for Refraction. S. Van Wien. —p. 1527.

Intraepithelial Epithelioma of Cornea and Conjunctiva (Bowen's Disease). B. Esterman, J. Laval and Clara Okrainetz.—p. 1537.

Ocular Changes in Acute Disseminated Lupus Erythematosus: Report of Case With Microscopic Findings. F. C. Cordes and S. D. Aiken. —p. 1541.

Capillary Fragility and Capillary Permeability in Relation to Retinal Hemorrhage. R. L. Shanno, J. Q. Griffith Jr. and W O. La Motte Jr.—p. 1556.

Effect of Visual Training on Existing Myopia. H. R. Hildreth, W. H. Meinberg, B. Milder and others.—p. 1563.

Capillary Fragility and Retinal Hemorrhage.—Shanno nd his co-workers think that there is at least a possibility hat certain cases of retinal hemorrhage may be due to an lteration in the capillary wall which may be present throughout he body, although obvious lesions may appear only in the etina. To explore this possibility the authors have carried ut tests to demonstrate increase in capillary fragility and ermeability in the cutaneous capillaries, in patients with retinal emorrhage. Studies were made on 2 groups of patients, one consisting of 47 subjects with recent retinal hemorrhage who were referred from other dispensaries to a special one set up for this study. The second group consisted of 32 patients with retinal hemorrhage referred as private patients to one of the authors. It was found that a considerable number of patients with retinal hemorrhage have an associated generalized capillary abnormality, *as shown by abnormal response to tests* for capillary fragility and permeability carried out on the vessels of the skin. The recurrence of retinal hemorrhage during the period of study was usually but not invariably associated with either increased capillary fragility or permeability, as shown by the tests. Rutin therapy was followed by return of capillary fragility and permeability to normal in about half of the dispensary group and in about 70 per cent of the private group; in such subjects further retinal hemorrhage usually failed to develop. In view of the number of cases, the period of follow-up and the diversity of results final conclusions cannot be drawn, but it is at least suggestive that rutin administered in adequate dosage and over a sufficiently long period may be of value in preventing further retinal hemorrhage in that group of patients whose initial hemorrhage was associated with a generalized capillary fault.

Visual Training in Myopia.—Hildreth and others describe research undertaken in an effort to determine the value of visual training as a means of improving the visual acuity in patients with myopia. The procedure required an Arneson squint corrector, a Keystone "tel-eye trainer" with certain Keystone cards and an American Optical Company "Wells-head." The technic was broken into eleven individual steps laid out for a training period of twenty-four days averaging about one hour per day. Of 87 myopic patients 33 were either rejected or the training was incomplete, leaving 54 records for study. Thirty of the 54 patients showed no change in their acuity, while 12 showed a definite improvement, the best results being obtained in the patients with small degrees of myopia. Twelve patients showed a change so slight as to be excluded in the results. The change in the improved group averaged 27 per cent. Eleven of the 12 improved patients were rechecked at an interval of fifteen to twenty-three months after completion of training. Five of these retained their improvement, while only 1 had less than pretraining acuity. There was neither change in the refractive error nor significant alteration in the ocular neuromuscular mechanism. It was thought that the improvement probably occurred because of an improved reception due to stimulation of the visual effort. The authors conclude that visual training has a definite but limited value in some myopic patients. The effectiveness of visual training must be increased if it is to be generally applicable. Visual training merits further study by the ophthalmologist.

American Review of Tuberculosis, New York

56:485-610 (Dec.) 1947

Effect of Streptomycin on Pulmonary Tuberculosis: Preliminary Report of Cooperative Study of 223 Patients *by Army Navy and Veterans* Administration. J. B. Barnwell and others.—p. 485

Streptomycin Therapy in Progressive Pulmonary Tuberculosis: Preliminary Report of Clinical Investigation in 37 Patients. R. O. Canada. —p. 508.

Streptomycin and Bed-Rest in Treatment of Pulmonary Tuberculosis. M. W. Fisher, G. W. Fishburn *and J. B. Wallace.—p. 534.*

Streptomycin in Treatment of Pulmonary Tuberculosis: Report of 15 Patients. A. Shamaskin, L. C. Morris, *E. J. Des Autels and others.* —p. 540.

Pulmonary Tuberculosis *Treated with Streptomycin: Report of 20* Patients. W. A. Cassidy and E. Dunner.—p. 552.

Streptomycin in Treatment of Pulmonary Tuberculosis: Therapeutic Review of 23 Patients. C. Parnall Jr., B. L. Brock and R. E. Moyer. *—p. 565.*

Treatment of Pulmonary Tuberculosis with Streptomycin. S. T. Allison *and J. M. N. Nilsson.—p. 579.*

Streptomycin Therapy with Special Reference to Pulmonary Tuberculosis. *N. D. D'Esopo and J. E. Steinhaus.*—p. 589.

Streptomycin in Pulmonary Tuberculosis.—Barnwell and others of the Veterans Administration treated 223 patients with moderately and far advanced pulmonary tuberculosis with streptomycin by a uniform regimen in seven Army, Navy and Veterans Administration hospitals. The results of this cooperative venture are described *in summary form.* Seven additional reports describe in greater detail observations on groups of these patients. The roentgenographic changes in more than half of the cases were viewed by a *jury of phthisiologists* appointed by the American Trudeau Society. It was the judgment of the jury that little or no change occurred in the productive or fibrocaseous lesions during the hundred and twenty days of treatment but that some degree of clearing occurred in 85 per cent of unstable, exudative lesions, which had been unchanged or progressive in more than two-thirds of the cases for at least sixty days prior to streptomycin therapy. The judgment of the investigators supported that of the jury. This change in the trend of the disease is regarded as evidence that streptomycin can favorably affect pulmonary lesions of this character and that it is superior in this respect to the effects of rest in bed. Extension of lesions occurred in 8 per cent of cases toward the end of treatment in the present series and in 16 per cent during the first to fourth months following its completion. Conversion of results of sputum tests to negative occurred in 40 per cent. In the opinion of the investigators the role of *streptomycin in the treatment of pulmonary tuberculosis* lies in the partial clearing of exudative lesions, either as an end in itself or as a preliminary to the collapse measures which it often makes possible. *The clinical changes during streptomycin* therapy were as frequent as the roentgenographic changes and were more impressive in extent. Cough and sputum were *almost constantly reduced; fever, when it was present,* was similarly affected, and more than 80 per cent of the patients gained an average of 12 pounds (5.4 Kg.) in body weight.

Laboratory observations established or reaffirmed two gross disadvantages of streptomycin therapy: damage to the vestibular apparatus and the development of resistance by tubercle bacilli, which in all probability makes the long continuation of treatment unprofitable. The possibility of minimizing or avoiding these disadvantages by alterations of the regimen is being pursued.

Annals of Allergy, Minneapolis

5:503-606 (Nov.-Dec.) 1947

•Immunity to Diphtheria Induced by Booster Dose of Diphtheria Toxoid Purified by Absorption and Elution: Based on Study of 55 Allergic Children. M. M. Peshkin and H. G. Rapaport.—p. 503.
Bronchial Asthma in Patients Over Age of 55 Years: Diagnosis and Treatment. A. H. Rowe and A. Rowe Jr.—p. 509.
•Allergens of Mill Dust: Asthma in Millers, Farmers and Others. C. Jimenez-Diaz, C. Lahoz and G. Canto.—p. 519.
Allergy in Glaucoma: Manifestations of Allergy in Three Glaucoma Patients as Determined by Pulse-Diet Method of Coca. C. Berens, L. J. Girard and Edith Cummings.—p. 526.
Anti-Asthmatic Effects of New Synthetic Antispasmodic: Beta-Diethylaminoethyl 9, 10-Dihydroanthracene-9-Carboxylate Hydrochloride. M. M. Hartman.—p. 536.
Methods for Objective Demonstration of Suspected Drug Sensitivity O. C. Hansen-Pruss and W. E. Leeper Jr.—p. 541.
Chemical Investigations of Giant Ragweed Pollen. G. C. H. Stone, J. Harkavy and G. Brooks.—p. 546.
Application of Tissue Culture Technic in Clinical Evaluation of Bacterial Hypersensitivity. F. A. Nantz and H. Blatt.—p. 554.
Active Sensitization to Pollen. R. P. Wodehouse.—p. 558.
Effect of Drugs in Modifying Response of Asthmatic Subjects to Inhalation of Pollen Extracts as Determined by Vital Capacity Measurements. I. W. Schiller and F. C. Lowell.—p. 564.

Immunity to Diphtheria in Allergic Children.—Peshkin and Rapaport point out that detoxified crude bacterial filtrates and alum-precipitated toxoids are still mainly used in prophylaxis against diphtheria. As a consequence, disturbing systematic reactions occur, especially after the administration of a booster dose of toxoid to older children. Crude toxoid prepared by detoxification of bacterial filtrates with a 40 per cent solution of formaldehyde, in addition to proteins of true exotoxin contains somatic antigens, i. e., soluble substances of proteinic nature that form precipitins with antibacterial serum. Under controlled conditions selective absorption of somatic antigens with magnesium hydroxide can be achieved. This absorption, however, resulted in slight reduction of the total nitrogen content in the toxin. Later methods were developed which made it possible to eliminate more than 90 per cent of the original nitrogen. Purified toxoid was prepared from absorbed toxin by subsequent detoxification with formaldehyde, dialysis, absorption of the toxoid with calcium phosphate and, finally, elution of the purified toxoid. This method yields a highly purified product which contains little nitrogen, is free from bacillary proteins and remains highly antigenic. The authors used these purified diphtherial toxoids in 55 allergic children who had bronchial asthma, hay fever or both. Comparative intradermal tests with a 1:100 dilution of crude yellow diphtherial toxoid and eluted calcium phosphated toxoid showed the latter preparation to give a decidedly lower incidence of positive reactions. The eluted calcium phosphated diphtherial toxoid can be regarded as a preparation pointing to definite progress in the search for diphtherial toxoid capable of lowering the incidence of local, febrile or systemic allergic reactions following its use in allergic children.

Allergens of Mill Dust.—Jimenez-Diaz and his associates show that there exists in cereal dust different elements that can produce sensitization. In order of importance they are fungi, insects, acarina and substances in dust and flour itself. The fungi of greatest importance are rust, smut and Tilletia. They can be found in great quantities in granary dust and in that of milling establishments, owing to their fineness and the ease with which they spread once the covering of the invaded grain has broken. The infected grain, equally with Ustilago and Puccinia, can spread in the air at the time of seed falling, thus acting as causative agents in the sensitization of the population at large. Other fungi, such as Aspergillus and Penicillium, can invade damp flour, but this is a much rarer occurrence. Although little attention has been given to insects as causes of asthma, the authors mention observers who have described sensitization by trichoptera (Caddis fly), ephemerida, Musca domestica and Cimex lectularius. In farmers, in persons who live near granaries or in mill workers investigations carried out by the authors have shown that the sensitizing agent can be coleoptera. Sensitization to flour itself is of most importance among bakers.

Annals of Internal Medicine, Lancaster, Pa.

27:861-1080 (Dec.) 1947. Partial Index

Osteoporosis. F. Albright.—p. 861.
Obesity. C. F. Gastineau and E. H. Rynearson.—p. 883.
Poverty of Immunologic Mechanism in Patients with Hodgkin's Disease. I. N. Dubin.—p. 898.
•Efficacy of Maintenance Doses of Digitalis in Preventing Recurrence of Congestive Heart Failure. J. S. LaDue and S. B. Carter.—p. 923
•Streptomycin in Treatment of Tuberculosis in Humans: Pulmonary Tuberculosis. C. Muschenheim, W. McDermott, Susan J. Hadley and others.—p. 989.

Digitalis in Congestive Heart Failure.—LaDue and Carter report on 104 patients with heart disease associated with regular sinus rhythm who had been discharged from Charity Hospital after treatment for congestive heart failure and were followed in the clinic at intervals of from one to four weeks over a period of from six months to two years. At the time the study was begun most of the patients had been taking 0.1 to 0.3 Gm. of folia digitalis for several weeks or months after discharge from the hospital. The data obtained by the authors suggest that vital capacity, circulation time, venous pressure and weight are, at best, crude measurements of cardiac reserve and are less reliable in evaluating this important factor than a careful consideration of the symptoms and signs manifested by a patient with heart disease. This does not detract from the value of these measurements in the study or evaluation of the degree of congestive failure present and of the mechanisms involved in the production and disappearance of cardiac decompensation. Evidence of the efficacy of maintenance doses of folia digitalis in preventing the recurrence of congestive heart failure, although not clearcut, suggests that it may be desirable to keep patients who have had congestive heart failure on maintenance doses of folia digitalis, since the rate of recurrence is twice as great as when the drug is withheld.

Streptomycin in Pulmonary Tuberculosis.—Muschenheim and his associates discuss results observed in 43 patients with pulmonary tuberculosis who were treated with streptomycin for from forty-two to one hundred and twenty days. Of 18 patients whose pulmonary lesions were predominantly exudative, 9 attained satisfactory early remissions during or shortly after the cessation of therapy Of these, 2 relapsed within six months, requiring collapse therapy, and a third relapsed within twelve months. Another 6 patients showed considerable improvement under streptomycin therapy but fell short of attaining full remission. The suitability of these cases for collapse therapy, however, was appreciably enhanced, and this measure was subsequently undertaken in 5 with apparent success. In 3 patients there was no significant benefit and a short period of symptomatic improvement was followed by resumption of the progressive course. Of another 18 patients with chronic fibrocavernous disease, 4 had satisfactory early responses and 4 more attained favorable results when the antimicrobial therapy was followed by thoracoplasty. In 10 of the 18 cases there was a short period of temporary improvement but no lasting benefit. Strains of tubercle bacilli highly resistant to streptomycin in vitro were obtained from 10 of 11 patients who continued to discharge bacilli during seventy-five to one hundred and twenty days of chemotherapy. The incidence of drug-resistant strains of bacilli was much lower when streptomycin therapy was continued for only forty-two days. When relapse occurred after the appearance of streptomycin-resistant organisms, the infection remained uninfluenced by the further administration of streptomycin.

Bulletin of Johns Hopkins Hospital, Baltimore

81:367-469 (Dec.) 1947

Nutritional Dermatoses in Rat: XII. Influence of Deficiencies on Extent of Injury and Healing Time of Liquid Mustard Gas Burns. M. Sullivan.—p. 367.
Comparative Efficiency of Single and Multiple Dosage Regimens of Penicillins. C. G. Zubrod.—p. 400.
Diffuse Congenital Cystic Hyperplasia of Stomach Clinically Simulating Carcinoma: Report of Case. H. W. Scott Jr. and T. P. B. Payne.—p. 448.

New York State Journal of Medicine, New York

48:1-112 (Jan. 1) 1948

of Primigravida Presenting Breech at Term. W. Baetz.—p. 49.

Is Present Mortality Rate Unnecessarily High? J. K. Quigley.—p. 55.

Vaginal Hysterectomy. O. N. Eastman.—p. 59.

Is Anal Fistula a Necessary Sequel to Perianal Abscess? E. Grane—p. 63.

Practice of Midwives in New York City. Helen M. Wallace, C. L. Mendelson, Leona Baumgartner and Ruth Rothmayer.—p. 67.

Modification of Incision for Laparotrachelotomy. J. T. Wallace and H. J. Merk.—p. 72.

Jaundice and Liver Function Tests: To What Extent Are They Necessary? B. D. St. John.—p. 75.

Use of Sodium Nicotinate in Treatment of Headache. A. P. Friedman and C. Brenner.—p. 78.

Conservative Treatment of Eclampsia with Emphasis on Stroganoff Method. K. M. Wilson.—p. 79.

Prophylactic Use of Niacin Amide Prevents Anorexia Following Administration of Sulfonamide. I. S. Goldstein.—p. 82.

Niacin Amide to Prevent Anorexia After Sulfonamide Therapy.—*Goldstein* says that for the past five years he has added to his sulfonamide prescriptions 50 mg. of nicotinamide (niacinamide), and he has found that this will prevent the anorexia that usually follows medication with sulfonamide drugs.

Public Health Reports, Washington, D. C.

62:1785-1812 (Dec. 26) 1947

Pteroylglutamic Acid ("Folic Acid"), Liver Extract, and Amino Acids in Treatment of Granulocytopenia in Rats. F. S. Daft.—p. 1785.

Serum Protection Test in Tularemic Infections in White Rats. C. L. Larson.—p. 1793.

63:1-40 (Jan. 2) 1948

Tuberculosis Mortality in Major Cities. United States, 1945. Sara A. Lewis and R. V. Kasius.—p. 3.

63:41-68 (Jan. 9) 1948

Preliminary Report Concerning DDT Dusting and Murine Typhus Fever in Nine Southeastern States. J. S. Wiley.—p. 41.

Some Factors Influencing Mouse Potency Test for Rabies Vaccine. K. Habel and J. T. Wright.—p. 44.

63:69-96 (Jan. 16) 1948

Estimate of Incidence of Chronic Disease. P. S. Lawrence.—p. 69.

Surgery, St. Louis

22:889-1052 (Dec.) 1947

*Streptomycin in Surgical Infections: IV. Peritonitis. E. J. Pulaski, S. F. Seeley and C. S. Matthews.—p. 889.

Studies in Experimental Frostbite: I. Effect of Heparin in Preventing Gangrene. H. B. Schumacker Jr., Beverly H. White, E. L. Wrenn Jr. and others.—p. 900.

Use of Anticoagulants in Surgery of Aneurysms and Arteriovenous Fistulas, with Particular Reference to Dicumarol. H. B. Shumacker Jr., D. I. Abramson and H. H. Lampert.—p. 910.

*Pulmonary Arteriovenous Aneurysm, a New Surgical Disease. W. L. Watson.—p. 919.

Peripheral Arteriography. L. J. Kleinsasser.—p. 930.

Chronic Eventrations and Large Hernias. Preoperative Treatment by Progressive Pneumoperitoneum—Original Procedure. I. G. Moreno.—p. 945.

Cushing's Syndrome Associated with Fuchsinophilic Staining Reaction in Adrenal. A. H. Pedersen and T. J. Kenyon.—p. 954.

Radical Pancreatoduodenectomy with Resection of Patent Portal Vein: Experimental Study. P. W. Schafer and J. S. Kozy.—p. 959.

Method of Cranioplasty Using Ready-Made Acrylic Cranioprostheses. H. J. MacKay.—p. 965.

Condylar Growth and Mandibular Deformities. M. B. Engel and A. G. Brodie.—p. 976.

Zippered Elastic Stockings. H. D. Cogswell.—p. 993.

Streptomycin in Surgical Infections.—*Pulaski* and his associates say that the sulfonamide drugs, penicillin and streptomycin are by no means solely responsible for the reduced mortality in peritonitis. The management of peritonitis now includes, in addition to chemotherapy and antibiotic therapy, intestinal decompression, correction of fluid and electrolyte balance and of protein depletion and measures to prevent or treat thrombophlebitis and phlebothrombosis with threatening pulmonary infarction and embolism. The 63 cases of peritonitis which are reported form a heterogeneous group in respect to etiologic basis, management, dosage and duration of therapy. All the patients were desperately ill, but they were predominantly young men in good health. Of the 5 deaths, 3 were due to nonbacterial causes. In the other 2 cases streptomycin was added to other forms of therapy when the patients were already moribund. Eighteen of the 58 patients who recovered were treated only with streptomycin; the remaining 40 patients were treated with streptomycin and penicillin, supplemented in 10 cases by sulfadiazine. Immediate dramatic results were seldom observed following the administration of streptomycin, whether it was used alone or in combination with penicillin, although in both spreading and localized peritonitis recovery was thought to be more smooth and rapid when the drugs were used in combination. Resolution of peritoneal suppuration in the streptomycin series was of approximately the same pattern as is seen in patients receiving penicillin in excess of 800,000 units. Results were generally less striking when streptomycin was employed in infections which had already localized. The dosage of streptomycin varied between 1 and 4 Gm. per day, administered by the intramuscular route in divided doses at intervals of three or four hours. In a few instances streptomycin in amounts up to 0.5 Gm. was introduced into the peritoneal cavity at the time of operation. Consistently beneficial effects could never be attributed to streptomycin when the dosage was 2 Gm. per day or less. Harmful effects were not observed in consequence of daily dosages of 3 Gm. per day for ten to fourteen days, although minor untoward reactions occurred in approximately 20 per cent of the cases. Patients who received 3 Gm. per day of streptomycin alone or 2.5 Gm. in combination with an average of 480,000 units of penicillin had the most satisfactory postoperative convalescence. Streptomycin is not a panacea, yet it has a valuable place in the treatment of peritonitis.

Pulmonary Arteriovenous Aneurysm.—*Watson* states that the medical literature contains reports of only 10 cases of congenital or nontraumatic pulmonary arteriovenous aneurysm. The lesions have been reported as cavernous hemangioma of lung, multiple pulmonary hemangiomas and arteriovenous fistula of lung. As the gross anatomic structure consists of a lobulated, thin-walled, branching, blood-filled pulsating pulmonary sac made up of both an arterial and a venous component, it seems more logical to call these lesions pulmonary arteriovenous aneurysms in order to distinguish them from benign hemangiomas of the lung, metastatic pulmonary hemangiomas or hemangioendotheliomas of the lung. A pulmonary arteriovenous aneurysm produces a shunt whereby a considerable amount of blood passes from the arterial to the venous circulations of the pulmonary circuit without passing through the alveoli of the lung to be oxygenated. This results in a low oxygen saturation of the arterial blood. A patient so afflicted is in danger of hemorrhage which may prove fatal, of cerebral thrombosis with epileptiform seizures due to the slowed circulation and of increased volume in red blood cells. Coronary artery thrombosis is also known to occur. A mild degree of invalidism necessitating curtailment of activities is usual. Six patients have been cured by surgical measures. The histories of 2 of these are reported. Surgical measures varying from pneumonectomy, lobectomy and multiple local excisions to ligation of the offending, or "feeder," artery have been carried out, and there have been no postoperative fatalities. The untreated or medically managed patients have not improved or have died. Although pulmonary arteriovenous aneurysm is apparently a congenital lesion, symptoms may not appear until the age of 14 or 16 years. In 1 of the author's cases, the patient had reached the age of 27 and the lesion was causing no symptoms and was discovered by chance radiography. The diagnosis is suggested by a syndrome characterized by cyanosis, clubbing of the fingers and toes, secondary polycythemia and symptoms of anoxemia, usually in a young patient with an obscure pulmonary tumor and a normal heart. A bruit may be heard over the tumor. A gradual, expansive enlargement and thinning out of the walls of the vascular tumor probably takes place slowly over a period of years, and spontaneous hemorrhage occurs, as in case 2 of this report, when some slight overexertion increases the intrapulmonary pressure enough to cause a break.

Wisconsin Medical Journal, Madison

46:1189-1308 (Dec.) 1947

Tuberculosis in the Older Age Group. C. D. Boyd.—p. 1203.

Hospital Postgraduate Education. O. O. Meyer.—p. 1205.

Visual Education for Laity in Hospital Public Rooms. A. S. Jackson.—p. 1207.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Practitioner, London
159:427-498 (Dec.) 1947

Present Status of Tonsillectomy. W. A. Mill.—p. 427.
Some Unusual Conditions of Throat. V. E. Negus.—p. 436.
Present Status of Penicillin and Sulfonamides in Infections of Throat. W. I. Daggett.—p. 442.
Problem of Diphtheria Carrier. E. H. R. Harries.—p. 446.
Throat in Relation to Singing and Public Speaking. R. S. Stevenson. —p. 452.
Atomic Physics in Medicine. S. Rowlands.—p. 459.
Fits in Children. A. D. Bell.—p. 463.
Treatment of Psychologic Conditions in General Practice. A. Guirdham. —p. 468.
Post-Anesthetic Vomiting and Chest Complications. H. P. Price.—p. 474.

Thorax, London
2:169-223 (Dec.) 1947

Giant Bullous Cysts of Lung P. R. Allison.—p. 169.
Mediastinal Cysts of Bronchial Origin. P R. Allison.—p. 176.
*Treatment of Bronchopulmonary Suppuration by Local Injection of Penicillin Report of 63 cases. H. Métras and J. Lieutier.—p. 196.
Complete Occlusion of Superior Vena Cava with Chronic Mediastinitis in Case of Generalized Actinomycosis. J. P. D. Mounsey.—p. 203.
Radiotherapy in Cancer of Thoracic Esophagus. J. A. C. Fleming. —p. 206.
Results of Thoracoplasty in Pulmonary Tuberculosis. T. H. Sellors. —p. 216

Local Penicillin in Bronchopulmonary Suppurations.—Métras and Lieutier say that after using Thomson's catheter for bronchography, one of them designed a set of special radiopaque rubber catheters which allow the injection of radiopaque substances not only into a lobe but even into separate and selected bronchopulmonary segments. After they had used the special catheters for bronchography, they used them also to inject penicillin directly into a pulmonary abscess by way of the tracheobronchial tree. The tracheobronchial tree is first anesthetized with a 1 per cent solution of pontocaine hydrochloride and the catheter is introduced into the trachea. The patient is placed behind the fluorescent screen, then the catheter is directed toward the bronchus of the diseased segment and placed as near as possible to the bronchus of drainage. The patient is then placed in such a position that the end of the sound and the affected segment are vertically downward. The patient is arranged comfortably in this position, and 100,000 units of penicillin in 5 to 10 cc. of isotonic sodium chloride solution are injected slowly; the patient remains in the same position for thirty minutes The injection should be repeated every two days. The average number of injections needed is eight. For the bronchi of the middle and lower lobes the ordinary bent catheter is adequate; for the bronchi of the upper lobes it is necessary to use catheters with a double turn if an adequate injection is to be achieved. Sixty-three patients have been treated. The results show that local instillation of penicillin is worth while either because it provides an easy and quick method of improving the condition of the patient before operation or because it can cure with little disturbance and few manipulations many patients who would otherwise be judged hopeless. In the series of 63 cases, 75 per cent recovered and 17 per cent have undergone an operation for extirpation of the disease.

Sang, Paris
18:453-520 (No. 8) 1947. **Partial Index**

Atypical Aleukemic Lymphadenia Associated with Eosinophilia, with Reference to Certain Modes of Development (Involution or Transition to Lymphosarcomatosis). P. Ravault and P. Guinet.—p. 453.
*Agranulocytosis of Schultz's Disease Type Intensive Penicillin Treatment Combined with Injections of Pentose Nucleotide and Liver Extracts; Recovery. B. Muller, P. Bouquin and A. Meyrieux.—p. 493
*Ascorbemia in Pulmonary Tuberculosis. Lafontaine.—p. 499.

Penicillin in Agranulocytosis.—Muller and his co-workers report the occurrence of agranulocytosis of the type of Schultz's disease in a man aged 46 with sore throat who presented symptoms of severe infection. His general condition was grave; there was pronounced asthenia and rise of temperature to 104 F. (40 C.). Nondiphtheric false membrane covered pharyngolaryngeal necrotic ulcers. Icterus occurred in the absence of hypertrophy of the hematopoietic organs and the liver Leukopenia (1,250 white blood corpuscles) associated with a nearly total disappearance of granulocytes (5 per cent) was demonstrated on hematologic examination. Sulfathiazole and antidiphtheritic serum were ineffective. Penicillin treatment was instituted with doses of 480,000 to 800,000 units per day by intramuscular route and was continued for twenty-five days; the total dose amounted to 12,970,000 units. This was combined with injections of pentose nucleotide and liver extracts. Following the start of the penicillin treatment, there was a drop in the temperature, which was gradually restored to normal. The general condition improved considerably. Regeneration of the blood progressed rapidly, thus demonstrating that the bone marrow was damaged but not destroyed anatomically. It may also explain the late occurrence of a secondary abscess of the submaxillary glands associated with polynucleosis warranting a favorable prognosis. Progressive improvement has continued for several months, suggesting a definite recovery with little risk of recurrence.

Ascorbemia in Pulmonary Tuberculosis.—Lafontaine determined the excretion of ascorbic acid in the urine, the level of ascorbic acid in the blood and the excretion of ascorbic acid in the urine after the administration of massive test doses of ascorbic acid (vitamin C) in 172 patients with pulmonary tuberculosis and in 20 healthy persons who lived under the same conditions, were placed on the same diet and were given the same amount of rest as the patients with tuberculosis. Results demonstrated a disturbance of the metabolism of ascorbic acid in the tuberculous patients; it was manifested by a decrease of the excretion of ascorbic acid in the urine, by a diminished level of the ascorbemia and by an increase in the retention of the agent following the administration of excessive test doses of ascorbic acid. Graphic records of the ascorbemia after the intravenous injection of ascorbic acid showed that the disturbance of metabolism is one of increased want rather than one of absorption or of excretion. The increase in the necessary amount persists in spite of the administration of massive doses of ascorbic acid. To some extent the disorder may be attributed to the tuberculous condition. The disturbance of excessive consumption of ascorbic acid is the more pronounced the severer the patient's condition, with the exclusion of other phenomena which may have an effect on the metabolism of ascorbic acid. There was no evidence of any therapeutic effect of ascorbic acid on the pulmonary tuberculosis or even on the hemoptysis.

Nordisk Medicin, Gothenburg
36:2259-2306 (Nov. 14) 1947. **Partial Index**

Digitoxin—Cardiac Glycoside in Light of Recent Investigations. S. Wiedling.—p. 2259.
Care of War Victims in Finland. J. Heinonen.—p. 2264.

Hospitalstidende

Mucocele, in Appendix with Pseudomyxoma Peritonei. F. Bergan. —p. 2272.

Hygiea

*Etiology of Toxemia of Pregnancy. A. Edlén, B. Knutsson and K. Palmstierna.—p. 2281.
Psoriasis Provoked by Acute Polyarthritis. O. Ljung.—p. 2285.

Svenska Läkaresällskapets Förhandlingar

Dental Caries and Acid-Forming Bacteria. G. Bremer and P. Varenius. —p. 2289.
Principles for Treatment of Malignant Tumors. J. Hellström.—p. 2296.

Etiology of Toxemia of Pregnancy.—Edlén and his associates studied the relation between toxemia and blood groups in mother, father and child in 129 recent pregnancies. In the 31 cases in which the father had group O blood toxemia occurred in only 1 case; in the 59 in which both partners belonged to the same blood group and in the 7 in which the mother's blood group was AB it did not occur. These pregnancies are regarded as homospecific, other pregnancies as heterospecific. Toxemia of pregnancy occurred in 7 of 10 cases of heterospecific pregnancy in primiparas and in 4 of 22 cases in multiparas. The father's blood group, unless the mother belongs to the AB group, plays a decisive part in the origin of toxemia. The occurrence of toxemia probably depends on two factors, the hypophysis-thyroid hyperfunction normal in all pregnancies and a foreign factor; this latter factor, the authors maintain, is heterospecific protein transmitted from the father. Toxemia of pregnancy is thus regarded as an allergic reaction of the mother's organism to foreign protein. The results of attempts at prophylactic desensitization of the mother in heterospecific pregnancies by intracutaneous injection of the father's serum will be published later.

Industrial Medicine, Chicago

16:519-566 (Nov.) 1947. **Partial Index**

Orienting the New Employee in Services of Industrial Health Department. Jean S. Felton.—p. 519.
*Causalgia. P. Pernworth.—p. 525.

Causalgia.—Pernworth says that industrial surgeons are occasionally confronted with the apparent paradox of minor trauma producing severe subjective complaints. When the patient's symptoms greatly exceed the objective observations it is usual to give at least tacit consideration to some element of malingering. However, there is one well established syndrome which may follow insignificant injury. To this condition of autonomic derangement have been applied the terms reflex sympathetic dystrophy, causalgia or Weir-Mitchell's syndrome. When bony changes are prominent the phenomenon is termed Sudeck's atrophy. Whenever sympathetic dystrophy is suspected, a block of the autonomic nerve supply to the affected area should be induced with procaine hydrochloride. Response to anesthesia of the involved sympathetic ganglion is a reliable diagnostic criterion of this condition. The author illustrates this by a case report. He concludes that causalgia should be considered as an etiologic factor in all chronically painful limbs that show vasomotor changes.

Journal of Investigative Dermatology, Baltimore

9:219-276 (Nov.) 1947. **Partial Index**

New Factors in Adhesive Formulas Which Lessen Irritation. R. E. Humphries.—p. 219.
Studies of Sweating: I. Preliminary Report with Particular Emphasis on Sweat Retention Syndrome. M. B. Sulzberger, F. Herrmann and F. G. Zak.—p. 221.
New Series of Fungicidal Fatty Acid Esters. E. S. Bereston.—p. 243.
Specificity of Skin Tests in Deep Fungus Infections. L. Katzenstein.—p. 249.

Medicine, Baltimore

26:333-498 (Dec.) 1947

Filariasis in American Armed Forces in World War II. W. B. Wartman.—p. 333.
Nervous System in Tropical Disease: Clinical Review W. S. Chalgren and A. B. Baker.—p. 395.
'Clinical Patterns of Undifferentiated and Other Acute Respiratory Diseases in Army Recruits. J. H. Dingle, T. J. Abernethy G. F. Badger and others.—p. 441.
*Bacteriologic Findings in Undifferentiated and Other Acute Respiratory Diseases. J. H. Dingle, T. J. Abernethy G. F Badger and others.—p. 465.

Clinical Patterns of Acute Respiratory Diseases.—Dingle and his co-workers present a classification of acute respiratory disease as it occurred among recruits in the army during three years of observation. From 75 to 90 per cent of all respiratory admissions to the hospital were due to a syndrome of undifferentiated acute respiratory disease. The average clinical pattern of this syndrome did not change in three separate studies in different seasons. The cases were characterized by a short febrile course and presented a combination of general constitutional symptoms with a prominence of symptoms suggesting involvement of the tracheobronchial tree. Symptoms of nasal involvement were less common. It was a disease without characteristic physical observations and with a normal leukocyte count. Its etiology was unknown. There was no suggestion of a bacterial cause and much to suggest a virus etiology. Exudative tonsillitis and pharyngitis was responsible for 10 to 15 per cent of respiratory admissions. In half of the cases, beta hemolytic streptococci were not found. These cases not due to streptococci had a rather characteristic pattern of symptoms and of physical signs in the throat. They were not dissimilar from cases of undifferentiated acute respiratory disease, of which they may be a variant. In the remainder of the cases of exudative tonsillitis and pharyngitis the throat harbored beta hemolytic streptococci. In some of these streptococcic antibodies developed. The latter cases conformed to a pattern of symptoms and physical signs which was distinctive and set them apart from all the other groups. The remainder were cases in which diagnostic antibody responses did not develop. Some were probably true streptococcic infections, but most resembled nonstreptococcic exudative tonsillitis and pharyngitis superimposed on a streptococcic carrier state. Only a small part of the total admissions for acute respiratory disease was made up of primary atypical and bacterial pneumonias and a miscellaneous group of other respiratory infections.

Bacteriologic Data in Acute Respiratory Diseases.—Dingle and his co-workers agree with Bloomfield that the most efficient method of studying the relationship of minor respiratory disease and the bacterial flora of the respiratory tract is by taking serial cultures before, during and after colds, employing the same subjects repeatedly over a period of time. Human volunteers were subjected to inoculation with infectious material, and bacteriologic observations were made at two day intervals throughout prolonged preinoculation and postinoculation periods. No changes in flora were noted during illness which were greater than those seen in the same persons before illness or in other persons not inoculated. In a similar manner serial throat cultures were obtained from several platoons of army recruits. Evidence was not obtained that changes in bacterial flora occurred in relation to the onset of colds. In both studies considerable variation was observed in the carrier rates of several organisms grown from these cultures These variations were not related to the development or to the general prevalence of minor respiratory illness. Throat cultures of men hospitalized for undifferentiated acute respiratory disease and influenza revealed no differences which could be associated with their illnesses, in contrast to results in those with infections due to beta hemolytic streptococci.

New England Journal of Medicine, Boston

237:969-1004 (Dec. 25) 1947

*Diarrhea of the Newborn: Its Causes and Prevention S. H. Clifford.—p. 969.
Unusual Case of Acute Infective Polyneuritis with Visceral Lesions. F. Parker Jr. and R. D. Adams.—p 976.
Emphysematous Gastritis. C. E. Welch and C. M. Jones.—p. 983.
What Industry Thinks About Massachusetts Medical Society's Program of Medical Care for People of Massachusetts J. Hunt.—p. 986.
Nasal Carrier of Beta-Hemolytic Streptococci. H. M. Lemon.—p. 988.
Acute Oophoritis and Perioophoritis.—p. 995.
Rheumatic Heart Disease, with Mitral Stenosis and Insufficiency. Mural Thrombus of Left Auricle. Cerebral Embolus of Left Middle Cerebral Artery.—p. 997.

Diarrhea of the Newborn.—Clifford shows that the emergence of epidemic diarrhea in the newborn as a public health problem coincides with the transfer of childbirth from the home to the hospital. Hospitals have been unprepared for this migration, and crowding infants into nurseries, in addition to the shortage of personnel, has produced conditions favorable for the spread of infection. There is a national need for more beds for obstetric patients and for more nurseries, each to be limited to 8 to 12 newborn infants. In five epidemics a specific virus etiology has been proved. This virus is probably the cause of other outbreaks, but many epidemics of diarrhea in the newborn have been traced to a variety of pathogenic organisms that could only reach the infant by the fecal-oral route. In a large percentage of these outbreaks investigators have found evidence of gross breaks in nursery technic. The first obligation is to block all routes by which the infant can acquire bacterial infection in the nursery through a strict application of known nursery and formula-room technics.

New Jersey Medical Society Journal, Trenton

44:479-532 (Dec.) 1947 **Partial Index**

Reconstructive Surgery of Extremities. J. J. Flanagan.—p. 482.
Primary Attack of Benign Tertian Malaria Fourteen Months After Cessation of Suppressive Therapy. I. L. Sperling.—p. 487.
Diagnosis and Management of Pelvic Endometriosis. F. L. Payne.—p. 496.
*Relationship of Occupational Strain to Rectal Conditions. S. Zager.—p. 501
Headache: Impressions of an Ophthalmologist. F. D. Carroll.—p. 503.

Occupational Strain and Rectal Conditions.—Zager says that some standard textbooks, specifically Bacon, mention as predisposing to hemorrhoids "severe muscular strain such as lifting" and increased intra-abdominal pressure such as "straining from coughing, sneezing and vomiting." Authorities considered procidentia of the rectum a form of "sliding hernia," and for this reason its parallel to the compensable situation of inguinal hernia is not too far fetched. The author relates histories of 3 workers in whom rectal symptoms appeared after heavy lifting or pulling and who were granted compensation. He thinks that preemployment physical examination should be more carefully performed to rule out the possibility of preexisting disease of the rectum. The Workmen's Compensation Act pays for aggravation as well as for direct cause.

Book Notices

Gastroenterology in General Practice. By Louis Pelner, M.D., Associate Attending Physician Greenpoint Hospital, Brooklyn With the collaboration of Louis A Held, M D, Attending Roentgenologist, Beth Moses Hospital, Brooklyn and contributions from Alexander Lewitan, M D, Consulting Roentgenologist Norwegian Public Health Service, New York, Samuel Waldman, M D, Associate Attending Physician, Greenpoint Hospital, Brooklyn, and Siegfried W Westing, M D, Roentgenologist, Brooklyn Cancer Institute, Brooklyn Fabrikoid Price, $7 50 Pp. 285, with 109 illustrations Charles C Thomas, 301-327 E Lawrence Ave., Springfield, Ill, 1946

The aim of the author as stated in the preface is to make this "an every day hand-book rather than a complete reference work" While he succeeds in accomplishing this purpose there is probably little need for such an elementary book in the library of the general practitioner Any standard textbook of general medicine will supply all that is found in this book plus fairly complete descriptions of the other common diseases encountered in medicine The chapters on psychosomatic problems are well written and will be of value to the practitioner.

Walk with a Separate Pride. By Sheila Alexander Cloth, Price, $2 50 Pp 158 The Itasca Press, a division of The Webb Publishing Co 55 E Tenth St, St. Paul 2, 1947.

The author of this book was seven months pregnant when her husband left for the wars Her book is a psychologic document, imaginative, poetic and sensitive. As fiction it will appeal to few readers. As a contribution to the stream of consciousness, it will be of special interest to the psychologists and the psychiatrists.

The American Sanatorium Association: A Brief Historical Sketch. By Lewis J Moorman, M D Historical Series Number 3. Paper. Pp 72, with portraits. National Tuberculosis Association, 1790 Broadway, New York 19, 1947.

This booklet presents a historical account of the development and organization of the American Sanatorium Association, now known as the American Trudeau Society Included is a record of its meetings and transactions since the establishment in 1905, giving not only a list of committees and their functions, papers, discussions and other activities, but also the names of physicians who have taken a prominent part in the work of the association. As these events and activities unfold, the reader will gain a clearer understanding of the progress that has been made in the sanatorium field since the turn of the century. The booklet will be of interest to physicians associated with sanatorium services as well as to others who are concerned in the treatment and care of those with tuberculosis.

Office Treatment of the Eye. By Elias Selinger, M.D., Attending Ophthalmologist, Mount Sinai, Cook County and Michael Reese Hospitals, Chicago Cloth Price $7 75 Pp 542, with 67 illustrations. Year Book Publishers, Inc, 304 S Dearborn St, Chicago 4, 1947

Since probably 90 per cent of most ophthalmic practice is office practice, this textbook contains much the same material that is to be found in good textbooks of ophthalmology except for major surgical problems. The important difference is in the approach to the subject and the difference in stress on various phases. There is little anatomy and not much that could be considered primarily instructional at the level of the undergraduate medical student It is assumed that the reader is grounded in the fundamentals though the more abstruse problems, such as those concerning the handling of the extraocular muscular abnormalities, are considered in great detail The book tends to be a treatise on therapy and is up to date along these lines. The writer is rather conservative in his advice, the book being free from radical suggestions The average ophthalmologist will probably not find much that is new to him but will enjoy the easy readability and sound advice The illustrations, printing and format are acceptable The book can scarcely be considered a "must" for the practicing ophthalmologist but rather a pleasing addition to his ophthalmic library

Studies in Genius. By Walter G. Bowerman. Cloth. Price, $4.75. Pp 343. Philosophical Library, Inc., 15 E. 40th St., New York 16, 1947

After defining genius, the author analyzes the list of eminent Americans *as to their birthplace, heredity, marriage, height and* weight, cause of death and similar factors. Among 973 eminent Americans he includes twenty-four physicians, and as to the genius of some of them there might be considerable doubt. The book presents some interesting speculations but little that can be practically helpful in selecting and encouraging genius.

The Science Digest Reader: A Selection of Outstanding Articles Published in Science Digest During the Past Ten Years. Cloth Price, $3. Pp. 310 Windsor Press, 200 E Ontario St, Chicago 11, 1947.

From the periodical called *Science Digest* the editors have selected a number of articles published during the past ten years. A few are in the field of medicine, for example, "Foolish Fancies About Your Health," "The Gifted Child," "Your Stomach Is Really a Gland" and "Childbirth Without Pain." Several of the articles are republished from *Hygeia.*

How Our Minds Work. By C. E. M. Joad Cloth Price, $2 75 Pp. 110. The Philosophical Library, Inc., 15 E 40th St, New York 16, [n. d.].

Innumerable books have been published recently trying to *explain modern psychology to the average reader. Influence* of the mind on the body is now generally accepted, and psychosomatic medicine has a well recognized position in medical circles. Dr. Joad's book is an exceedingly brief analysis of current points of view and quite inadequate in simplifying for the general reader the controversies that prevail in modern psychology and psychiatry. He concludes by insisting that the unconscious is not nearly as important as the psychoanalysts insist, but he recognizes that some extraordinary results have been achieved by psychoanalytic methods.

Reading and Visual Fatigue. By Leonard Carmichael, Ph.D., President, Tufts College, and Director, Tufts Research Laboratory of Sensory Psychology and Physiology, Medford, Mass., and Walter F. Dearborn, M.D., Ph.D., Director, Psycho-Educational Clinic, and Professor of Education, Harvard University, Cambridge, Mass. Cloth. Price, $5. Pp. 483, with 103 illustrations. Houghton Mifflin Co., 2 Park St., Boston 7, 1947.

A committee of well known scientists and educators, known as the Committee on Scientific Aids to Learning, financed a series of investigations of reading. These began in 1940 at Harvard University and Tufts College and were continued by *one of the investigators at the University of Rochester.* Special types of apparatus were developed for recording eye movements.

Modern industrial and educational processes place a tremendous burden on vision. Some physicians have even credited continuous, fatigue of the eyes with being the foundation of the "neurotic tendency" of our times. After a definition of visual fatigue the authors present their consideration of the factors involved in reading and the relation of these factors to fatigue. The technic of the experiments is described in detail, followed by a discussion and interpretation of the results. An excellent summary and conclusions provide the general reader with the true significance of the study

Apparently one may assume that the total visual mechanism is able to function approximately as effectively at the end of a long period of continuous activity—as much as six hours—as at the onset of that activity. An analogy is made with the heart The heart muscle can recuperate in the short time intervals between its contractions. When needed, the heart can rise to new levels of activity. Proper athletic training assists in conditioning the heart and the circulation for the new effort. The factors of safety in the construction of the eye are great, and its muscles are larger and stronger than necessary for most of the movements that the eye may make This leads to the conclusion that the long periods of study required of high school and college students are not injurious to their eyes. The final conclusion of the authors is also important. The first index of fatigue comes in alterations of the general attitudes and general feelings of the person concerned rather than in a breakdown of the sensory neuromuscular mechanism which actually performs the task.

The Master Hand: A Study of the Origin and Meaning of Right and Left Sidedness and Its Relation to Personality and Language. By Abram Blau, M.Sc., M.D., C.M., Assistant Clinical Professor of Psychiatry, New York University College of Medicine, New York. Research Monographs No. 5, American Orthopsychiatric Association, Inc. Cloth. Price, $4.50. Pp. 206, with 13 illustrations. The American Orthopsychiatric Association, Inc., 1790 Broadway, New York 19, 1946.

The subject here considered has attracted much scientific attention in recent years. Some of the author's conclusions may still be debatable. He does not find that preferred laterality or the preference for either the right hand or the left hand is inherited. He considers it a complicated developmental psychologic trait. Evidence indicates that preferred laterality is manifested not only between hands but between eyes, legs and other human functions. Some persons prefer to walk on one side of the street rather than the other. Few ambidextrous persons indeed are equally competent on both sides. Animals do not show preferred laterality as do human beings. In human beings the preference for the right side is a cultural and social convention. An infant does not have any preference for one side or another, but our environment is built on righthandedness and preference for one side or another usually becomes apparent at about 9 months of age. Lefthandedness represents a failure to learn righthandedness, according to the authorities. Any physical defect in the right hand enforces use of the left. Lefthanded parents are unconsciously models for lefthanded children. The author believes that the commonest type of lefthandedness is due to emotional contrariness in early childhood. Cerebral dominance is related to handedness, so that persons are leftbrained because they are righthanded. The author recommends that children be encouraged in their early years to adopt righthandedness because thus the child will be better equipped to live in a righthanded world. He does not believe that there is any danger in restraining or retraining children in handedness. The most he finds that is required is careful and sympathetic training in the use of the other hand with proper directional orientation.

Your Teeth: And How to Keep Them. By Jerome J. Miller, D.D.S. With an Introduction by C. Raymond Wells, D.D.S., Sc.D., Captain, Dental Corps, U. S. Naval Reserve. Cloth. Price, $3. Pp. 232, with 44 illustrations. Lantern Press, Inc., 257 Fourth Ave., New York 10, 1947.

This volume, written by a practicing dentist and teacher of dentistry, attempts to present intelligibly answers to questions about teeth and their care to the lay reader. While the book is intended primarily for the nonmedical person, it may have real usefulness to the physician in interpreting such material to his patients.

Facts about the structure and growth of teeth are introduced in relation to proper care and as a background for good oral hygiene. Common dental problems that arise at various age levels are discussed with special attention to the care of children's teeth. The author refutes the general belief that there are "hard and soft teeth" and makes a strong case against "fear of dental pain" in view of local and general anesthetics, drugs to calm the highly nervous person and advances in dental technic. Restorative dental treatment and appliances are dealt with at some length, with skilled dental service rather than the appliance receiving major emphasis. Simple cleansing of the teeth together with regular dental care are stressed as important principles of dental health

The book is written in understandable language, and is illustrated with line drawings where graphic clarification seems valuable. The author has honestly labeled theories as such, has been careful in interpreting facts and has not hesitated to admit limitations of present knowledge.

Overcoming Stammering. By Charles Pellman With a foreword by Dr. Frederick Martin. Cloth. Price, $3. Pp. 160. The Beechhurst Press, Inc., 296 Broadway, New York 7, 1947.

This book attempts to present a practical system for the treatment of the stammering child. The terms stammering and stuttering are considered synonymously in the text. The author, a practicing speech correctionist, advocates reconditioning the speech reflexes, contending that stammering must be overcome by developing the faculty of speech itself. He takes issue with those who look on stammering as the symptom of an inferior nervous constitution and with those who seek to achieve correction solely through public speaking, breath control or word substitution and the like.

The method involves learning speech over again, in an objective way, following essentially the same steps by which a child learns to talk. Fundamental and auxiliary drills are employed, and a partial silence to allow for the setting of new speech responses is a part of the procedure. Tongue, facial and general physical exercises are used to break down muscular rigidity. A great deal of attention is given to dispelling speech consciousness and the fears which beset the stammerer. Emphasis is placed not only on eliminating the defect but also on aiding the child to become a proficient speaker. A portion of the book is devoted to suggestions as to how the intelligent parent can help in the process.

The theories presented, stressing correction primarily through reconditioning speech patterns and improving mental hygiene, should be of interest to parents, teachers and physicians concerned with this problem.

Digitalis and Other Cardiotonic Drugs. By Eli Rodin Movitt, M.D., Captain, Medical Corps, Army of the United States. Cloth. Price, $5.75. Pp. 204, with 15 illustrations. New York: Oxford University Press, 1946.

An excellent summary of the present day information on digitalis and related compounds is given in this small and readable book. The various components of digitalis are reviewed in detail, starting with a brief historical account of the fractions the structural chemistry, specific pharmacologic properties and clinical experiences. A number of diagrams throughout the book clearly illustrate some of the aspects of the digitalis fractions that are confusing to the average practitioner. Basic chemical reactions and structural formulas afford the reader an opportunity to see the latest developments in the field of glycosides and materially clarify parts of the text that would otherwise be of benefit only to research workers in the field of cardiology. A number of graphs demonstrate pharmacologic action in terms of energy liberation, work performance, efficiency of operation, pulse, heart volume and absorption and elimination of the various drugs. It is to be regretted that there are few electrocardiograms shown on pages 80, 99 and 105 and those few rather poorly printed.

The discussion on strophanthus, squill, thevetin and other drugs of plant and animal origin is accurate and well written. A number of minor errors unfortunately appear in the book, as venus pressure on page 9. Some will question the unqualified statement on page 25: "One should remember that in acute myocardial infarction the displacement of the RS-T segment takes place in the opposite direction (above the iso-electric line) from that observed in digitalis effect." On the whole, it is an excellent book on digitalis and allied substances that should be of real value to the general practitioner and the internist. An excellent review of the literature, a well prepared bibliography and a good index enhance the usefulness of the book, which is basically a fair statement of present knowledge of the subject in easily readable and enjoyable style.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

DIPHTHERIA VIRULENCE

To the Editor:—We frequently hear of "diphtheria carriers" held for weeks or months of observation on account of suspicious diphtheroids as visualized on smear by some technician. In many of these cases the faucial lesion or membrane and/or the clinical course or therapeutic response are not especially typical of infection due to Corynebacterium diphtheriae. I would appreciate answers to the following questions: 1. Does a microscopic smear ever justify a positive differential diagnosis between a true virulent diphtheria and a nontoxic diphtheroid? 2. Can a positive statement as to the degree of virulence be justified from rough or smooth appearance of the culture? 3. Can the same organism, found to be nontoxic by guinea pig inoculation on one occasion, be capable of changing its virulence after repeated cultures or after repeated animal or human passage? 4. Should inoculation of toxin for virulence in guinea pigs be mandatory in the study of all cases of diphtheroid? 5. What is the latest thought regarding the value of the tellurite technic relative to virulence of diphtheria and diphtheroid organisms?

M.D., North Dakota.

ANSWER.—1. One experienced in the examination of diphtheria organisms can differentiate on smear, in the vast majority of instances, between a true diphtheria bacillus and a diphtheroid. However, it is not possible to distinguish by smear examination the difference between virulent and nonvirulent diphtheria bacilli. 2. No. 3. Yes. 4. If it is determined to one's satisfaction that the organism is a diphtheroid, a virulence test would not be necessary. 5. The tellurite technic would be of no value for determining the virulence of diphtheria organisms.

ACNE

To the Editor:—Kindly outline the latest treatment of acne simplex and acne vulgaris in an adolescent male aged 19. Is roentgen treatment preferable to cold quartz? Do emotional factors play a part?

M.D., New York.

ANSWER.—Treatment in these cases depends on the severity of the acne. If the lesions are superficial, small and not too disfiguring, satisfactory results can be obtained by a combination of topical therapy and some simple dietary restrictions. A sulfur preparation such as lotio alba should be applied every night to the point of producing slight exfoliation. The patient should be instructed to avoid the following in his diet: seafoods; foods that produce flushing of the skin, such as hot dishes, spices and alcohol; foods rich in fats, particularly chocolate, cheese, nuts, fat meats and gravy. The face should be cleansed thoroughly with soap and water two or three times a day, and the patient should not engage in an occupation which exposes him to oils or greases. If there is constipation or anemia, these should be brought under control. In recent years vitamin A, vitamin B, thyroid substance and estrogenic substance have been recommended, but their efficacy is still a matter for debate. Blackheads should be removed by the proper expressor and cystic lesions should be incised with a very small blade, as an iris knife. For persistent, deep-seated lesions roentgen therapy is still the treatment of choice and is preferable to use of the cold quartz mercury vapor lamp. The influence of emotional factors usually is not great; rather, acne is likely to affect the emotions.

LEUKEMIA

To the Editor:—Has leukemia, especially acute lymphatic leukemia, ever been produced experimentally? Is there a cerebral center which regulates formation of blood, especially white blood cells? Can this center be disturbed by trauma or regulated by drugs?

M.D., Pennsylvania.

ANSWER.—Leukemia of all types (lymphatic, myelogenous and monocytic) has been produced experimentally in mammals by numerous agents including radiation, hormones and various chemicals. It also occurs spontaneously in many animals. The picture resembles more the chronic leukemias in the human. In chickens there is a spontaneous disease, similar to human leukemia, caused by a virus.

The existence of a cerebral center for the regulation of blood formation has never been established, although there have been speculations as to the role of the pituitary and hypothalamus. The possible effects of drugs or trauma on such a hypothetic center would therefore be a matter of conjecture only.

Forkner quotes four authors who each described acute leukemia following injury to bones. However, the available evidence for a cause and effect relationship does not seem to be clearcut.

CESAREAN SECTION

To the Editor:—The general opinion is that it is "not safe to have more than two caesarian sections"—hence sterilization is performed routinely at the second section. Further, "once a section, always a section," regardless of normal pelvis, position. Is this correct?

M.D., Arizona.

ANSWER.—Theoretically each additional pregnancy after cesarean sections might involve increased risk of rupture of the uterine scar, and the operations might become more and more difficult because of adhesions; in practice, however, the likelihood of these accidents is minimal with laparotrachelotomy. Ordinarily there is no limit to the number of sections which a healthy woman may safely undergo. As many as eight sections have been done on some patients.

Sterilization is obviously indicated in a patient suffering from some condition such as grave cardiac or renal disease, which would make another pregnancy hazardous. It may also be considered as an elective procedure at the second or a later caesarean section in a healthy woman if she and her husband decide, after mature consideration, that their desire for another child is not great enough to warrant the ordeal of a laparotomy.

The dictum "once a cesarean, always a cesarean" holds good when the first operation is done for contracted pelvis or some other abnormality which would equally complicate all subsequent deliveries. But if the first section is performed because of a condition incidental to that one pregnancy, for example, placenta previa or preeclamptic toxemia, it is frequently possible for later deliveries to be effected from below, especially if the patient has already borne a child *per vias naturales.* Labor in such a case should be watched with special care, and everything should be ready for laparotomy if there is any indication of thinning of the uterine scar.

"DICUMAROL"

To the Editor:—The administration of "dicumarol" for a relatively prolonged period of time is sometimes indicated. There are many disadvantages such as the necessity for the periodic determination of prothrombin levels, which is costly. This drug is primarily for the purpose of reducing the coagulability of the blood. Is it a more rational and practical procedure to regulate the dosage of the agent by determining the coagulability, rather than the prothrombin activity, of the blood?

M.D., Illinois.

ANSWER.—Determination of coagulation time cannot be substituted for that of prothrombin time in regulating the dosage of "dicumarol," because the coagulation time is little affected at the level of prothrombin (20 per cent of normal), which is desired for therapeutic effectiveness. It is only when the prothrombin is reduced to an exceedingly low concentration that a significant prolongation of the coagulation time occurs (Quick, A. J.: *J. Biol. Chem.* **161**:33 [Nov.] 1945).

Even if the coagulation time was suitable for testing quantitatively the action of "dicumarol," the obstacle of trustworthy technic still remains. The determination of the coagulation time by the capillary method, as commonly carried out, is meaningless and worthless. Only when the determination is performed by the Lee White technic under carefully controlled conditions are reliable results obtained; and this entails practically as much skill and effort as the prothrombin time method. The prothrombin test remains the only trustworthy means to control "dicumarol" therapy. Since it is becoming a routine hospital laboratory procedure, it should soon become available to most physicians.

FURUNCULOSIS

To the Editor:—For two years I have been treating a girl aged 4 years for repeated attacks of furunculosis. Sulfonamide drugs and penicillin (both internally and externally), a full course of autogenous vaccine and staphylococcus endotoxoid have been used without effect. Furuncles continue to develop every few months. Foci of infection are absent. Urinalysis is normal. Her health is otherwise good. Her parents are in good health. Please suggest other methods of treatment.

Jacob Greenblatt, M.D., Stamford, Conn.

ANSWER.—Occasionally, satisfactory results are obtained by the simple procedure of having the patient's entire body sponged twice a day with a solution of bichloride of mercury, 1 : 10,000. The underclothing should be changed daily and the outer clothing cleaned frequently. Generalized ultraviolet baths are often helpful, and the intake of carbohydrates should be restricted. One must be certain that the child is not receiving bromides or iodides, which occasionally will produce furunculous lesions in sensitized persons. A sugar tolerance test might reveal useful information.

If in spite of this regimen a new outbreak of furunculosis should occur, it might be well to administer penicillin again in large amounts and for a longer period, along with roentgen therapy to the lesions.

SYPHILIS

To the Editor:—A boy aged 16 had a severe attack of acute rheumatic fever at the age of 10 years. He was confined to bed for six months. Wassermann examination at that time revealed a 4 plus reaction. Examination since that time reveals no signs of syphilis other than positive blood tests. Serologic tests for syphilis on the blood and spinal fluid of the mother and on the blood of two other children in the family have been negative. The father of the patient died with Hodgkin's disease. The patient had recurrent acute rheumatic fever two years ago, but the attack was mild and there is now no evidence of rheumatic fever. Repeated Kolmer and Kahn tests on the blood of the patient have been strongly positive. Should he be told that he has a false positive test, or should antisyphilitic treatment be administered and a quantitative Kahn examination of his blood be made at regular intervals? M.D., Texas.

Answer.—It is stated that the examination does not reveal signs of syphilis. Was a lumbar puncture done? Moreover, it is not stated how many units of reagin were present in the patient's blood. In certain diseases with reversal of the albumin globulin ratio, e. g., granuloma inguinale, lymphogranuloma venereum and subacute disseminated lupus erythematosus, a false positive serologic test for syphilis occasionally occurs.

This patient should have a lumbar puncture, and if that is negative, much would depend on the degree of positivity in terms of Kahn units. One would hesitate to treat the patient for syphilis unless the test showed a high number of units. Occasionally a syphilis insontium does occur, and that must be considered as a possibility if the boy has a large number of Kahn units. Under those conditions, it might be well to give this boy, after a short course of intramuscular injections of bismuth subsalicylate, once a week for six or eight weeks, a course of crystalline penicillin G, 7,200,000 units, the injections being given intramuscularly every three hours over a period of two weeks.

REFRIGERANT GASES

To the Editor:—Please give me information regarding the toxic effects, if any, resulting from gases used in refrigeration, namely, methyl chloride and dichlorofluoromethane. The patient is a maintenance and installation mechanic for refrigeration units.

Cecil C. Shaw, M.D., Loxley, Ala.

Answer.—Dichlorodifluoromethane, known under the trade name of "freon," is a colorless, nontoxic refrigerant. R. R. Sayers, W. P. Yant, J. Chornyak and H. W. Shoaf (Industry Report 3013, United States Department of Commerce, Bureau of Mines, May 1930) report on the toxicity of dichlorodifluoromethane as follows "In so far as the results of animal experimentation serve as a measure of hazards to persons, the investigation has shown that the possibilities of public health and accident hazards resulting from exposure to dichlorodifluoromethane when used as a refrigerant are remote."

Methyl chloride as used in the refrigeration industry is a colorless liquid with an ethereal odor and a sweetish taste. It is inflammable and explosive as well as toxic. Acute poisoning is attended by headache, dizziness, mental confusion, nausea and vomiting, lowering of blood pressure and, in serious cases, cyanosis, cramps and coma. Chronic cases are characterized by increasing fatigue, lassitude, muscular weakness, restlessness and occasionally, insomnia.

Most cases of individual poisoning are due to repeated exposure to small doses which gradually cause injury to the central nervous system. Exposure to 200,000 parts per million for one hour is dangerous to life; exposure to 500 parts per million is a safe working condition for a few hours, according to California law.

CATARACT

To the Editor:—A patient has a mature cataract in the left eye and incipient in the right eye. Recently he consulted an oculist and was given the following treatment. Synthetic thyroxin (2 mg. to each cc. distilled water) to be dropped in eye three times daily. He was told that in many instances this would retard if not improve his condition. Please give information regarding this treatment.

Ralph C. Wise, M.D., Mansfield, Ohio.

Answer.—Thyroxin was first used in 1934 by Jameson on the theory that thyroxin exerted a local stimulating effect and acted as an alternative. His dosage was 1 mg. to the cubic centimeter used locally on the eyeball. He reported beneficial results both in limiting the growth of cataract formation and in the absorption of existing opacities. In 1941 Gillette repeated some of Jameson's work and did a series of his own; he came to the conclusion that thyroxin locally (1) does not check the development of senile lens opacities (2) does not cause the absorption of existing opacities and (3) has no demonstrable metabolic effect. Vail seems to be of the same opinion as Gillette. At the present time there seems to be little clinical evidence that thyroxin is of any use in preventing further growth of cataract or in absorbing existing lens opacities.

STERILITY

To the Editor:—I have a male patient, aged 40, with relative sterility. His history is essentially noncontributory, but he recalls that his left testicle was traumatized at 13 years of age. Physical conditions are normal except that the left testicle is about half the size of the right. Both testes are of normal consistency. The prostate is slightly enlarged and somewhat boggy. Results of urinalyses and the Wassermann test are negative. Hemoglobin and the white blood cell count are within normal limits. The basal metabolic rate is minus 12 per cent. The volume of ejaculated semen is about 2.5 cc., with a sperm count of 10 million. Motility of sperm is somewhat sluggish. I did not determine the percentage of abnormal forms, but on ordinary microscopic examination some abnormal spermatozoa are seen. I am treating this patient with vitamin E and thyroid. Is other therapy recommended? What are this man's chances of attaining a normal level of fertility?

M.D., Ohio.

Answer.—Before any elaborate program of treatment is undertaken, the cell structure of the spermatozoa should be evaluated. If there proves to be a high incidence of abnormal forms, then a biopsy of this patient's right testicle is indicated. This will help to judge whether the germinal epithelium is capable of responding to stimulation. The first step in treatment is careful attention to hygiene and general health, with special reference to outdoor exercise, rest and relaxation, adequate protein in the diet and the possibility of chronic focal infection. The prostatovesicular secretions should be examined.

Endocrine therapy deserves a trial, though results are often discouraging. Pregnant mare's serum, other chorionic gonadotropins and pituitary gonadotropins might be used seriatim, since there is no way of predicting which offers the best chances of benefit. While large doses of sex hormones inhibit the anterior pituitary, very small doses of testosterone sometimes readjust the pituitary-gonad balance in such a way as to increase the gonadotropic output.

A postcoital examination (Hühner test) done at the wife's midcycle will show how well the spermatozoa are able to invade the endocervical mucus. If a defect in this regard is observed, attention should be directed to possible abnormalities of the mucus, such as scantiness or infection, and appropriate treatment should be instituted.

Relative infertility in one partner may be overcome by high fertility in the other. Hence, the wife should be critically studied with the idea of finding and eliminating all factors of infertility.

Efforts to improve the values of deficient semen are usually attended by rather meager success. Nevertheless, definite improvement may be obtained in a few cases.

CORRECTION; PERTUSSIS VACCINE

To the Editor:—In the Dec. 13, 1947 issue of *The Journal*, page 1040, under "Vaccination against Pertussis," there is an error in the second paragraph on the dosage of Sauer pertussis vaccine alum precipitated.

The alum precipitated pertussis vaccine prepared according to the Sauer specifications contains 30 billion Hemophilus pertussis bacilli per cubic centimeter, and the recommended dose is 0.5 cc. per injection at one month intervals. Four injections are recommended if immunization is attempted before the sixth month of life, or three doses if injections are begun after 6 months of age. It is recommended that injections be made in the buttocks, alternating from left to right, care being taken not to make a second injection in a site previously used.

The dosage described in the article referred to is for the plain H. pertussis vaccine, which should be used only after the child is 6 months of age or older. When alum precipitated pertussis vaccine is administered in dosage greater than 0.5 cc. an area of softening may be caused by the alum, which is known as "alum cyst." Occurrence of such cysts is infrequent but can be avoided by using small doses of the vaccine.

Louis W. Sauer, Evanston, Ill.

PENICILLIN—STREPTOMYCIN

To the Editor:—On page 745 of the Nov. 15, 1947, issue of *The Journal* is an answer to a query which might well be further elaborated. It is true that, in general penicillin and streptomycin are compatible, at least as far as the antibiotics themselves are concerned. However, if streptomycin sulfate should be mixed with calcium penicillin, of which a significant amount is still sold, a precipitate of calcium sulfate would be inevitable. I thought it might be well to elaborate on this point, because otherwise some one might get an unwelcome surprise.

Robert D. Coghill, Director of Research,
Abbott Laboratories,
North Chicago, Ill.

POSSIBLE INCOMPATIBILITY OF STREPTOMYCIN AND PENICILLIN

To the Editor:—In the Nov. 15, 1947, issue of *The Journal*, page 745, I note that in answer to an inquiry concerning the possibility of giving streptomycin and penicillin in the same syringe the reply states that there is no incompatibility. I think the situation has been overlooked in which aqueous solutions of calcium penicillin and streptomycin sulfate might be mixed, with the consequent formation of calcium sulfate as an insoluble precipitate.

George Rieveschl Jr., Detroit 32.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 136 NO. 15
CHICAGO, ILLINOIS
APRIL 10, 1948

COPYRIGHT, 1948, BY AMERICAN MEDICAL ASSOCIATION

FIVE YEAR FOLLOW-UP OF GLAUCOMAS

PETER C. KRONFELD, M.D.
Chicago
and
H. ISABELLE McGARRY, M.D.
Evanston, Ill.

From the Illinois Eye and Ear Infirmary, University of Illinois.

Read before the Section on Ophthalmology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

To the almost innumerable reports on the effect of treatment on the course of glaucomas, another one is added herewith in the hope that it will justify its presentation by meeting more fully the requirements for such reports as set by Sidney A. Fox in 1943.[1] Those requirements were: (1) the adoption of a standard nomenclature for glaucoma, (2) the provision of a standard preoperative classification of glaucoma into groups and subgroups; (3) a systematic evaluation of all the important operative procedures, old and new, in all the common types of glaucoma, (4) a systematic follow-up for definite periods of time and (5) evaluation of results on the basis of generally adopted, uniform criteria.

While fulfilment of requirements 1 and 2 will be impossible until a representative, probably international committee of experts agrees on a standard nomenclature and classification of the glaucomas, we believe that the distinction between the narrow angle (iris block) and the wide angle type among the so-called primary glaucomas (O. Barkan[2]) expresses such a fundamental difference in pathogenesis and mechanism that, at present at least, it appears to be the most logical basis for classification. The fact brought out in this study that the results of treatment prove significantly different in the two types adds another piece of evidence in favor of this classification.

The surgical operations referred to in this report were performed by surgeons of such widely varying background and such different general attitude toward the problem of glaucoma that the net result as to choice of operation in the specific types and stages of the glaucomas came close to a systematic evaluation of all more common operations.

We believe that requirements 4 and 5 have been met in this report. The follow-up was made by the medical staff of the Glaucoma Clinic of the Illinois Eye and Ear Infirmary. The staff consists of two or three ophthalmologists whose training, experience and disposition qualify them for the job of objective, impartial observer and recorder in the follow-up of the glaucomas.

As criteria of the efficacy of the treatment, we have considered the course of the glaucomatous involvement of the optic nerve as disclosed by perimetry and measurements of visual acuity, as well as the ocular tension.

The specific object of this study has been the establishment of the relationship between the course of the glaucomatous involvement of the optic nerve and the prevailing range of tension in the various stages of glaucomas.

MATERIAL AND PROCEDURE

This report is based on the observation in the Glaucoma Clinic of the Illinois Eye and Ear Infirmary of definite (not borderline) cases of so-called primary glaucoma in adults. In accordance with the general plan of this study, the patients, or rather their individual eyes, were classified as to stage of the disease, course of the disease and prevailing tension range. Each eye was thus classified at the time when, as the result of treatment, the tension had become stabilized within a definite tension range, and again five years later. Only eyes which maintained this tension range—as evidenced by frequent tonometric readings during morning hours—for the entire period of five years were included in this study.

The classification as to the stage of the disease was based entirely on perimetric findings. Three stages: early, moderately advanced and far advanced, were distinguished. Because of a certain perimetric routine followed in the glaucoma clinic, it became advisable to modify the limits of Gjessing's[3] three groups as follows:

The limits of stage 1 (early glaucomas) were the perfectly normal field on the one hand and one to two, narrow, incomplete to complete Bjerrum scotomas (for 3/1000 white targets) with normal position of the isopter for 3/330 white on the other hand. The papilla was either not perceptibly altered or showed early glaucomatous changes.

Stage 2 (moderately advanced glaucomas) was characterized by a "merger" between the Bjerrum scotoma and the peripheral constriction on the nasal side resulting in extensive defects chiefly in the nasal half of the field. The nerve head showed definite glaucomatous changes.

Stage 3 (far advanced glaucomas) was considered to be present in the cases in which after loss of most of the nasal field the remaining portions had been invaded. The limits of this group were, on the one hand, a somewhat reduced temporal half with well functioning center and, on the other hand, a central island of vision with or without a temporal island or vice versa. Eyes with a visual acuity of 3/200 or less at the inception of treatment were excluded from this study because perimetry could not be done with sufficient accuracy.

The prevailing tension range was estimated from the recorded tensions on the patient's glaucoma clinic record. These tensions had been determined with Schiøtz tonometers, Schiøtz's conversion table of 1924 being used with J. Friedenwald's corrections for average ocular rigidity.[4] These tonometrics had been done between the hours of 10 a. m. and 2 p. m. and, in most instances, frequently enough to establish the patient's prevailing tension range, since the physician in charge of the glaucoma clinic was just as profoundly interested in this factor as we were. To what extent the patient's tension at other times of the day may have deviated from this prevailing tension range will be discussed later

---

[1] Fox, S. A.: Am. J. Ophth. **26:** 31, 1943.

[2] Barkan, O.: Am. J. Ophth. **21:** 1099, 1938.

[3] Gjessing, H. G. A.: Acta ophth. **5:** 149, 1927.

Four tension ranges were distinguished:

Range 1 ·	(hypotony)	From immeasurably low to 15 mm. Hg.
Range 2	(normal)	From 15 to 27 mm. Hg.
Range 3	(moderately elevated)	From 27 to 35 mm. Hg.
Range 4	(high)	From 35 mm. up

With regard to the course of the glaucomatous changes in the optic nerve there existed three possibilities: the disease might remain stationary, it might be progressive (further loss of visual field), or regressive (gain of visual field) The last possibility, that is, the reversible field changes associated with short episodes of elevated intraocular pressure and the slight improvements seen occasionally in chronic glaucomas after normalization of tension, have not been considered in this paper. Thus, there remained only the two possibilities of further progression or no further loss. In analyzing the changes in the visual field after surgical procedures the following types of further loss of visual field could be distinguished: (1) loss of visual field due to operative complications, such as traumatic cataract, intraocular or retinal hemorrhages, postoperative iridocyclitis; (2) loss of visual field directly following uncomplicated operations and reaching a standstill within two months after the operation; (3) loss of visual field due to diseases other than and unrelated to glaucoma (vascular or senile retinal or choroidal diseases, senile cataract); (4) gradual loss of visual field starting four to six months postoperatively and continuing from there in the manner generally thought to be typical of glaucoma.

In eyes treated with miotics the following types of further loss of visual field could be distinguished: (1) loss of visual field due to diseases other than and unrelated to glaucoma, and (2) gradual loss of visual field characteristic of and attributable to elevation of intraocular pressure or undetected phases thereof.

Only loss of visual field of type 4 in the surgically treated and of type 2 in the conservatively treated patients was considered to be truly glaucomatous and indicative of progression of the glaucomatous involvement of the optic nerve. Only in those cases in which on at least three occasions (during the five year period of observation) unquestionable further loss of field was recorded was the disease classified as being progressive. To qualify as unquestionable the loss of field had to be definite as compared to the immediately preceding test and had to be confirmed by all succeeding tests. In most of the progressive cases, unfortunately, unquestionable loss as compared with the immediately preceding test was recorded more than three times during the five year period.

In the majority of cases this further loss of field was attributable to continued elevation of intraocular pressure. There was, however, a goodly number of eyes with progressive course of the disease in the presence of normalized intraocular pressure. The possibility of undetected phases of elevated pressure in these cases will be discussed later.

If, during the five year period, such unquestionable loss was recorded less than three times the case was considered as stationary. Needless to say, in the stationary group were included those cases in which no further loss of field occurred during the five year period.

The final step in the classification was the distinction between narrow angle and wide angle glaucomas. This distinction was made on the basis of the gonioscopic and clinical observations and in accordance with the procedure outline in a previous publication.[5] The distinction between the two types could not always be made with absolute certainty. In this report there is a possibility of a few wide angle glaucomas having been mislabeled as narrow angle glaucomas. However, the conclusions which we have drawn could not have been significantly affected by such errors in classification.

The observation period of five years was chosen in preference to any shorter period because of its obvious value in demonstrating the truly stationary course of the disease after normalization of the ocular tension In the cases in whom the disease progressed despite normalization of tension a shorter period was sufficient to demonstrate this phenomenon convincingly.

RESULTS

This report is based on 225 eyes with wide angle and 100 eyes with narrow angle glaucoma. We believe that the proportion of 225 to 100 does not express the true incidence of the two types in an unselected population. We would estimate that 25 per cent or less of all so-called primary glaucomas are of the narrow angle type. The reason why this narrow angle type is found more frequently in a group of glaucomas followed for five years is its greater responsiveness to the ordinary methods of treatment as compared with the wide angle type. As a group, the patients with the narrow angle type are better satisfied, happier, more stable and less apt to seek help elsewhere. The latter is a characteristic and understandable reaction of the patient with the wide angle type who has been operated on unsuccessfully two or three times and has been advised to submit to more surgical treatment.

Table 1 shows the distribution of the material according to stage of the disease at the patient's first visit to the infirmary, as well as the over-all effect of the treatment on the prevailing tension range.

As a group, the patients with narrow angle glaucoma presented themselves at an earlier stage of the disease than the patients with wide angle glaucoma. The acuteness of the symptoms of narrow angle glaucoma in its dramatic as well as in its milder forms induces the patient to seek medical care at an early stage of the disease, in contradistinction to the fundamentally chronic wide angle glaucoma of which most patients do not become aware until a considerable portion of visual field has been lost. The relative frequencies of the three stages at the first visit to the clinic would not have been appreciably altered by listing patients instead of individual eyes.

Table 1 also shows that normalization of tension is accomplished in a considerably and significantly larger percentage of narrow angle glaucomas (84 to 88 per cent) than of wide angle glaucomas (52 to 58 per cent).

To evaluate the figures of columns 5, 6, 7 and 8 of table 1 properly, a little more must be said about the procedure followed in classifying the material.

---

[4] Friedenwald, J. S.: Am. J. Ophth. 20: 985, 1937.

[5] Kronfeld, P. C.: Gonioscopic Correlates of Responsiveness to Miotics, Arch. Ophth. 32: 447 (Dec.) 1944.

To qualify for a place in one of these four columns the particular eye had to fulfil the respective requirement, that is, be normalized or not normalized by either surgical treatment or miotics during the whole five year period. Each eye was listed but once, namely as (*a*) normalized by surgical treatment if miotics had been tried unsuccessfully and surgical treatment alone, without the help of miotics, had succeeded in normalizing the tension; (*b*) normalized by miotics if the latter had normalized the tension without surgical treatment having been tried or after unsuccessful surgical treatment; (*c*) not normalized by surgical treatment if both surgical treatment and miotics, separately and together, had failed to normalize the tension, and (*d*) not normalized by miotics if the latter had failed to normalize the tension without surgical treatment ever having been tried.

In principle, surgical treatment was advised only after miotics had been tried for a sufficiently long period and had failed to normalize the ocular tension. Naturally, surgical advice was given more strongly and taken more readily if further loss of visual field had occurred during the period of conservative treatment or if the glaucoma was of the acute type.

Table 1, therefore, implies, though it does not state so explicitly, that miotics had failed not only in the eyes listed in column 8 but also in the eyes listed under 5 and 7. Thus, in the wide angle glaucomas of stage 1, the ratio of success to failure of miotics was 27:88 (0.31) and in the narrow angle glaucomas of the same stage 35:40 (0.88). We are convinced that the miotics are much more effective as tension-lowering agents in narrow than in wide angle glaucomas, but because of the fundamental difference in the course of the two types of glaucomas we doubt that the difference is accurately expressed in the two ratios (0.8 against 0.31) The dramatic course of narrow angle glaucoma, on the one hand, is apt to "scare" patient and surgeon into early operations[6] which might have been made unnecessary by application of a stronger miotic. The chronic course of wide angle glaucoma, on the other hand, is conducive to an attitude of procrastination on the part of the physician, as well as of the patient, especially if there is no rapidly progressive loss of field. That explains why 32 cases of wide angle galucoma (stage 1) were permitted to remain with tension not normalized for five years. Failure of surgical therapy in the patient's other eye may have been additional evidence in favor of conservative therapy. In narrow angle glaucoma, the state of nonnormalized tension is usually painful and always associated with rapid loss of visual field, so that few patients persisted in their refusal of surgical treatment for five years. These characteristics of the two types of glaucoma make the results of conservative treatment not strictly comparable, but the greater efficacy of the miotics in the narrow angle group is obvious.

With regard to the results of surgical treatment, the comparison of the two groups is probably "fairer." Again, strikingly better results are recorded in narrow angle than in wide angle glaucomas, the ratio of success to failure being 31:6 and 34:22 respectively. The large majority of the operations in narrow angle glaucoma naturally were iridectomies.

The reason for this difference in responsiveness to therapy between the two types of primary glaucoma, we believe, lies in the difference in mechanism. There is good evidence to the effect that in narrow angle glaucoma the trabecula-canal of Schlemm mechanism is and remains normal until the trabecular spaces are completely closed off from the anterior chamber by goniosynechiae. The aim of the treatment is to keep the trabeculae accessible to the aqueous, which is easily accomplished with miotics or an iridectomy. In most wide angle glaucomas, on the other hand, the disturbance is probably due to impaired function of the trabecula-canal of Schlemm mechanism itself, and therefore much more deeply rooted than in narrow angle glaucoma. Failure of the miotics calls for an operation of the filtering type, the success of which is still, to a considerable degree, dependent on factors not completely understood and not under the control of the operator. A very different situation prevails with regard to iridectomy in cases of narrow angle glaucoma, in which the surgeon has under his control almost all the factors that determine the outcome of the operation. In view of the fundamental differences between the two types of so-called primary glaucoma, they will from here on be discussed separately.

So far we have described the composition of the material at the inception of therapy and the over-all effect of the treatment on the prevailing range of tension. We are now turning to the description of the course of the disease as related to or influenced by the prevailing tension range.

TABLE 1.—*Distribution of the Material (Eyes) According to Type of Glaucoma and Stage of Disease at Inception of Treatment; Effect of Treatment on Tension*

1	2	3	4	5	6	7	8
			Tension Normalized			Tension Not Normalized	
Type of Glaucoma	Stage of Disease	Number of Eyes	Total Number	By Surgical Treatment	By Miotics	By Surgical Treatment	By Miotics
Wide angle, 225 eyes................	1	115 (51%)	61 (53%)	34	27	22	32
	2	56 (25%)	32 (58%)	26	6	16	8
	3	54 (24%)	28 (52%)	28	0	18	8
Narrow angle, 100 eyes..............	1	75 (75%)	66 (88%)	31	35	6	3
	2 and 3	25 (25%)	21 (84%)	19	2	4	0

WIDE ANGLE GLAUCOMAS

The course of the glaucomatous involvement of the optic nerve under the influence of treatment intended to lower the tension is shown in three graphs (figs. 1, 2 and 3) corresponding to the three stages of the disease defined previously. The plan underlying the graphs is that of a coordinate system, with the tension range recorded on the ordinate against time (five years) on the abscissa. The horizontal line across the center of the graphs marks the 27 mm. level. Circular areas are used to indicate the number of eyes that exhibited the phenomenon to be illustrated, that is, the course of the glaucomatous involvement of the optic nerve. White is used to indicate the stationary and dark gray to black, the progressive course. Shaded circles indicate the "uncertain" state of the eyes at the inception of therapy. From these shaded circles, arrows, implying tension-lowering treatment, lead to the partly white, gray and black circles illustrating the phenomena of stationary or progressive course. The size of the white, gray or black sectors expresses the relative frequency with which these phenomena occurred within the respective group of eyes.

---

[6] We practice and advocate early operations for acute narrow angle glaucoma because of (1) the high percentage of successes of and the small risk entailed in iridectomies and (2) the frequent necessity to operate under less favorable conditions later on.

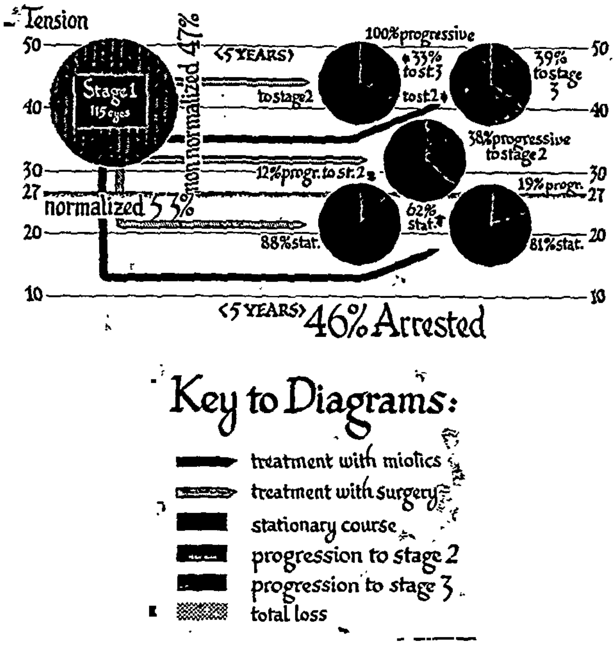


Fig. 1.—Wide angle glaucomas, stage 1.

Stage 1.—Graph 1 illustrates the relative frequency with which the stationary or progressive course occurred after normalization or nonnormalization of tension in eyes representing, at the inception of treatment, stage 1 of the disease. It was gratifying to find that after normalization of tension the course of the glaucomatous involvement of the optic nerve became stationary in 88 per cent of the surgically treated eyes and in 81 per cent of the conservatively treated eyes. Thus, the overwhelming majority of eyes of stage 1 showed favorable response to normalization of tension. The few eyes in which the disease continued to progress despite surgical normalization were borderline cases in that the field defect at the inception of treatment was almost of the magnitude characteristic of stage 2.

In every one of the nonnormalized eyes of stage 1 at the inception of treatment the disease progressed during the five year period; approximately two thirds of the eyes reached and remained within stage 2 while the remaining one third went on to stage 3. It is not clear from our material whether in the eyes with higher prevailing tension range the disease progressed further or faster than in the eyes with moderately elevated tensions. As was to be expected, good central visual acuity was maintained in 83 per cent of the nonnormalized eyes and became impaired as the result of glaucoma in only 17 per cent.

In a number of eyes the disease was consistently borderline in the sense that the treatment effected lowering of the tension to the range from 24 to 35 mm., with an average of between 27 and 30. The disease remained stationary in 62 per cent of these eyes and progressed in the remaining 38 per cent.

In summary, the eyes of stage 1 behaved as one would expect glaucomatous eyes to behave, the course of the disease of the optic nerve showing a close dependence on the prevailing tension range. Apparent independence occurred in only a few eyes in which the disease progressed despite normalization of tension. As stated before, the surgically treated eyes of this group were bordering on stage 2 at the beginning of treatment. Those treated conservatively do not prove independence with certainty, since miotics do not afford the same degree of protection against elevated tension "twenty-four hours a day" as surgical treatment. Thus, it may be said that in eyes with stage 1 of wide angle glaucoma independence of the glaucomatous involvement of the optic nerve from the prevailing tension range is rare enough to be considered an exception.

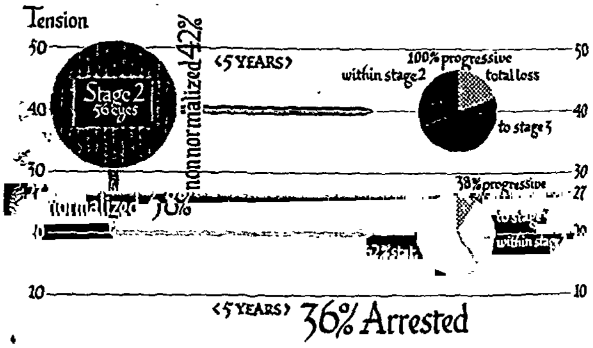


Fig. 2.—Wide angle glaucomas, stage 2.

Stage 2.—The striking feature with respect to eyes of stage 2 at the inception of treatment is the large (38) percentage of further progression of the glaucomatous involvement of the optic nerve in the group in which tension was normalized surgically. No comparable group treated with miotics was available for the obvious reason that in the face of further progression after normalization of tension by miotics the physician in charge naturally suspected the conservative treatment to be somewhat inadequate and resorted to surgical treatment. The progression proceeded in the stage 2 eyes in which the tension was normalized and in those in which it was not at about the same rate: About 30 per cent of the eyes in each group remained in stage 2, about 50 per cent of the eyes advanced to stage 3, and the remaining 20 per cent became entirely blind. Another characteristic feature of this stage was the frequent association of initially poor central visual acuity with marked to total further loss of central acuity and field on the one hand, and the frequent association

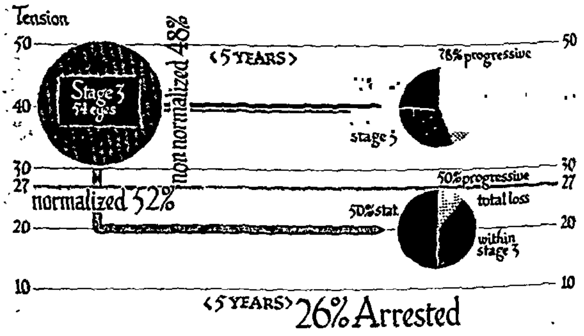


Fig. 3.—Wide angle glaucomas, stage 3.

of good initial visual acuity with a stationary course of the disease on the other hand.

Stage 3.—Eyes that were in stage 3 initially showed a behavior similar to that of eyes of stage 2. The percentage of further progression in tension-normalized eyes was still greater than in eyes of stage 2 (50 per cent against 38 per cent). The same relationship between initial central acuity and course of the disease prevailed in eyes of both stages. Twenty-three per cent of the group in which the tension was not normalized showed the remarkable feature of endurance of high tension ranges without further loss. These eyes showed initially small central or chiefly temporal field islands and represent the only examples of field remnants in primary glaucomas that sustained high ocular tension for five years without any loss.

NARROW ANGLE GLAUCOMAS

The course of narrow angle glaucoma under the influence of treatment intended to lower the ocular tension is shown in graphs 4 and 5. Under conditions of nonnormalization the glaucomatous disease progressed rapidly to total blindness. Under conditions of normalization the disease remained stationary during the five year and, in many instances, longer periods in approximately 90 per cent of all tension-normalized eyes, irrespective of the stage at which the normalization took place. Further progression occurred in less than 10 per cent of the normalized eyes of stage 1 and in a little more than 10 per cent of the normalized eye of stages 2 and 3, which is a strikingly low percentage compared to wide angle glaucomas.

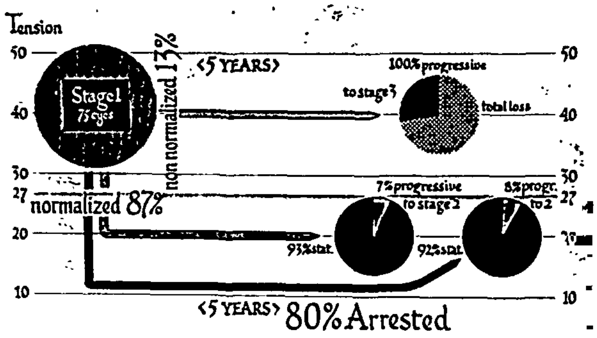


Fig. 4.—Narrow angle glaucomas, stage 1.

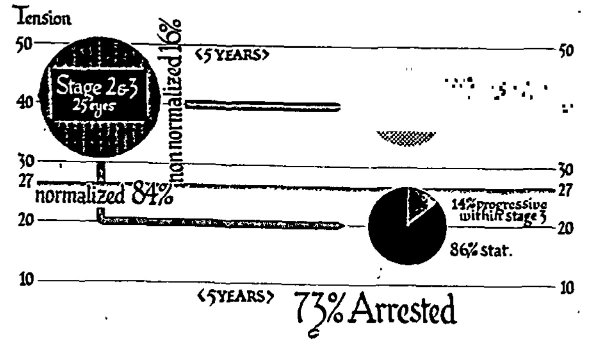


Fig. 5.—Narrow angle glaucomas, stages 2 and 3.

COMMENT

This survey has brought to the fore two phenomena which, while not new in any sense of the word, are remarkable in that they suggest independence of the course of the glaucomatous involvement of the optic nerve from the prevailing tension range.

The first phenomenon, the further progression of the glaucomatous involvement of the optic nerve after normalization of tension, occurred in 35 eyes with wide angle and in 8 eyes with narrow angle glaucoma. The size of this group permits some general conclusion.

This phenomenon almost invariably became manifest toward the end of the first year of normalized tension. Thus, it did not require a period of observation of five years to establish with certainty the fact of further progression. The progression of the glaucomatous involvement of the optic nerve after normalization of tension takes the same course as the "true" glaucomatous disease as far as can be judged from perimetric and visual acuity findings. Despite the normalization of tension, the deterioration of the visual field continues in accordance with the pattern so well established for the glaucomas and so well described by Traquair [7] and Lauber.[8]

Another obvious characteristic of the phenomenon of further progression after normalization of tension is its more frequent occurrence in the more advanced stages of the wide angle glaucomas. The relative frequencies of 12, 38 and 50 per cent, respectively, of further progression for the three stages of our material of wide angle glaucomas agree closely with the observations of A. B. Reese,[9] presented before this society in 1939, and of J. W. Burke,[10] presented before the American Ophthalmological Society in the same year. In the words of the latter author, "the fields are best retained in those cases in which little damage has been suffered before operation."

In our series the narrow angle glaucomas differed significantly from the wide angle glaucomas in that further progression after normalization of tension was a less common phenomenon and independent of the stage of the disease at the inception of treatment. Further analysis showed that in the far advanced narrow angle glaucomas, in which the disease remained stationary after normalization of tension, the disks showed the characteristic picture of atrophy of the postneuritic type without excavation. In these cases one or a few severe acute attacks, rather than frequent mild attacks, had caused the loss of visual function. In the few narrow angle glaucomas that showed further progression, typical deep glaucomatous excavations were present, just as in the cases of advanced wide angle glaucoma. Further progression after normalization thus appeared to be associated with deeply excavated disks and nonprogression with flat disks.

Special attention was paid to a possible relationship between further progression of the glaucomatous involvement of the optic nerve and the prevailing tension within the normal range. The problem consisted of three parts, namely:

1. What evidence is there that eyes with wide angle glaucoma may have such a low ocular rigidity as to give normal tonometric readings in the presence of elevated intraocular pressure?

2. What evidence is there that eyes which, on frequent tonometries during morning hours, consistently

---

[7] Traquair, H. M.: Clinical Perimetry, St. Louis, C. V. Mosby Company, 1935.

[8] Lauber, H.: Das Gesichtsfeld, Munich, J. F. Bergmann, 1944.

[9] Reese, A. B.: Value of Early Operation in Chronic Primary Glaucoma, Tr. Sect. Ophth., A. M. A., 1939, p. 58.

[10] Burke, J. W.: Am. J. Ophth. 23: 657, 1940.

gave readings below 27 mm. of mercury actually were tension normalized, that is, at all other times of the day would have given tonometric readings below 27?

3. What evidence is there that tension-normalized eyes may have such a low tension tolerance (H. S. Gradle[11]) as to be harmed by the normal tension range?

With regard to point 1, J. Friedenwald and D. Harrington (personal communication) have found that primary glaucomas possess average ocular rigidity. Thus, it is unlikely that in our group of eyes showing further progression after normalization of tension, a state of elevated intraocular pressure was masked by unusually low ocular rigidity.

With regard to point 2, the task was to look for a residuum of the glaucomatous elevation of intraocular pressure or to simulate it by means of provocative tests. The former was done by observing the diurnal variations in ocular tension either in the hospital or under conditions of normal unrestricted life. On patients with filtering operative scars of either the transconjunctival or the subconjunctival filtration type and routine morning tensions below 27 mm., diurnal variations of the ocular tension are difficult to demonstrate. These eyes are characterized by such a high degree of constancy of the tonometric reading that an occasional deviating reading is more apt to be due to a clinical experimental error than to an actually deviating tension.

Of the usual provocative tests, the drinking test of Marx appeared to be best suited for wide angle glaucomas (Kronfeld, McGarry and Smith[12]). In a study of the response of eyes with functioning operative filtering scars to the drinking test, J. S. Haas of this institution (in an article to be published) found fluctuations of the ocular tension of lesser magnitude than in normal eyes with the same initial tension. By these criteria, the functioning filtering scar in eyes with consistent pressure readings under 27 mm. of mercury seems to work as a safety valve of at least the same capacity as the normal trabecula-canal of Schlemm apparatus. This cannot be said for miotic-controlled eyes in which the drinking test frequently causes a rise as great as or greater than in a normal eye. Thus, in all miotic-normalized eyes in which there is further progression of the glaucomatous involvement of the optic nerve in the face of apparent normalization of tension, there is a definite possibility of insufficient normalization.

With regard to point 3 the eyes with stationary disease and those with further progressive disease in which the tension has been normalized surgically have been grouped (table 2) according to the prevailing tension range, which is either hypotony (below 15, range 1) low (range 1-2 with an average of 15) or normal (range 2 with variations between 18 and 27), and we found essentially the same relative frequencies. In other words, in the eyes with stationary disease and in those with further progressive disease, hypotony, intermediate and normal tension ranges occur with equal relative frequency. If the mechanism of further progression were due to a greater sensitivity to or to a lesser tolerance of ocular tension, one would expect the higher tension ranges (range 2) to occur more frequently in the eyes with progressive disease than in those with nonprogressive disease. This, however, was not the case. The equally frequent occurrence of the three normal tension ranges in the eyes with progressive and in those with nonprogressive disease speaks strongly for independence of the phenomenon of further progression of the prevailing tension. For the same reason, the prevailing tension range is unlikely to be an important factor in the mechanism of the further progression after normalization of tension. These observations fail to lend support to the concept of tension tolerance.

TABLE 2.—*Relative Frequency of the Three Normal Tension Ranges After Surgical Normalization in Stationary and Further Progressive Primary Glaucomas*

Course of Disease	Tension Range		
	1	1 to 2	2
Stationary	26%	15%	59%
Progressive	30%	22%	48%

The type of operation that produced the normalization did not seem to be an important factor either, since the three main types of operation, corneosclerectomy, iridencleisis and cyclodialysis, are represented in about the same frequency in the surgically normalized eyes with further progressive disease.

Other than the deep complete glaucomatous excavation, these progressively diseased eyes did not exhibit any ophthalmoscopic characteristics. They did not show vascular changes of the retinal or ciliary system with any greater frequency or severity than the eyes with nonprogressive disease.

A definite and consistent relationship was found between the course of the disease after normalization of tension and the visual acuity related to the glaucoma and prevailing at the time the normalization became effective. By visual acuity related to glaucoma, we mean the acuity affected or unaffected by the glaucomatous involvement of the optic nerve and not by any other manifestations of glaucoma (opacities of the media) or coincidental diseases. Arbitrarily we chose the corrected acuity of 20/50 as the borderline between good or slightly impaired vision on the one hand and markedly impaired vision on the other hand. In many of the eyes with a corrected visual acuity of less than 20/50, the field defect could be shown to involve the very center of the field, in the form of a wedge scotoma such as described by Evans.[13] Table 3 shows the relative incidence of good and poor visual acuity in the surgically normalized eyes with stationary and progressive wide angle glaucoma of stages 2 and 3. There was a definite majority of eyes with good visual acuities in the stationary and of eyes with poor visual acuities in the progressive group. It appears that an eye with good visual acuity after normalization has become effective has about twice as good a chance of retaining its visual functions as an eye with poor acuity. By the same token, the possibility of further progression after normalization is twice as great in eyes with poor acuity as in eyes with good acuity.

TABLE 3.—*Relationship Between Course of Disease and Visual Acuity*

Course of Disease After Normalization	Corrected Visual Acuity	
	>20/50	<20/50
Stationary (100%)	73%	27%
Progressive (100%)	34%	66%

---

11. Gradle, H. S.: Tension Tolerance, Tr. Sect. Ophth., A. M. A., 1940, p. 17.

12. Kronfeld, P. C.; McGarry, H. I., and Smith, H. E.: Am. J. Ophth. **26**: 245, 1943.

13. Evans, J. N.: Am. J. Ophth. **27**: 1090, 1944.

Heretofore, the term progression has been used to describe further loss of visual field irrespective of its location within the field. The relationship between visual acuity and incidence of further progression discussed in the foregoing suggests an exceptional position of the center of the visual field as far as progression of the glaucomatous involvement of the optic nerve is concerned. Further evidence along this line is obtained by determining the chances of survival, after normalization of tension, for specific portions of the visual field. Since further progression after normalization of tension takes the same course as "true" glaucoma, the paracentral portions of the upper nasal quadrant have the greatest and similar portions of the lower nasal quadrant next to the greatest specific susceptibilities to further progression. The incidence of further progression in eyes of stage 2 (graph 2) refers primarily to those paracentral nasal portions of the field. During the first and most of the second stage of glaucoma, the site of the glaucomatous loss of field keeps 5 to 10 degrees from the center of the field, so that the sparing of the latter is not remarkable.

When, during the late stages of glaucoma, the "battle" is brought right to the center of the field, the latter shows the remarkable power to survive which has been pointed out recently by E. V. L. Brown[14] and A. B. Reese.[9] Among 18 surgically normalized eyes of stage 3 with good acuity and field defects extending within 5 degrees of the center of the field, the central circular area of 2 to 3 degree radius survived in 15 and was damaged or lost in 3 eyes. The chances of survival of the center of the field may thus be said to be 83 per cent, a remarkably high percentage for eyes with such extensive field defects. These observations speak for a specific resistance of the very center of the visual field to the further progression of the glaucomatous involvement of the optic nerve after normalization of tension.

Analogous observations have been made under conditions of nonnormalization under which all portions of the visual field eventually fall victims to the disease with the exception only of the very center and, occasionally, the temporal crescent. Among 12 eyes of stage 3 in which the tension had not been normalized the center was preserved in 9 and lost or damaged in the remaining 3. That would mean that the chances of survival of the center of the field under conditions of nonnormalization are 75 per cent, not appreciably worse than under conditions of normalization. The number of eyes on which these observations were made is too small to establish quantitatively the degree of resistance of the center of the field under conditions of nonnormalization of tension: It seems highly probable, however, that the chances of survival of the center of the field are not much poorer under nonnormalization than under normalization of tension.

The objection may be raised that in eyes with very small central field islands further progression of the glaucomatous involvement of the optic nerve is difficult to recognize. Since all these eyes had good central acuities, we feel that the consistency of the perimetric findings obtained by the Bjerrum technic and the consistency of the central acuity measurements make it highly probable that no portion of the small central island became lost during the five year period. We therefore interpret the apparent survival of small central islands as a phenomenon of specific resistance of the corresponding portion of the optic nerve rather than as an immeasurably slow loss. This phenomenon of specific resistance, just as the phenomenon of further progression after normalization, has long been known to ophthalmologists.[9] We are unable to furnish any new clues to the possible mechanism of either phenomenon. Our estimates of the chances for survival of the various portions of the field (graph 6) in the three stages of the disease may prove helpful in the management of glaucomas.

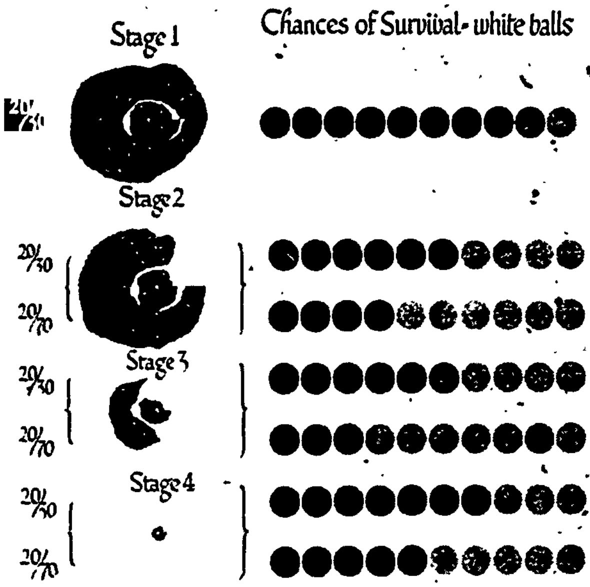


Fig. 6.—Chances of maintaining the visual status quo by normalization of tension (wide angle glaucomas).

In making the choice between surgical and conservative treatment, the physician will naturally have to consider the surgical risk, which depends on factors other than the type of eye operated and the type of operation performed, so that the figures calculated for this institution would not apply to any other institution or private practice. Thus, the surgical risk is a factor that every surgeon will have to estimate for himself.

The frequent occurrence of further eccentric field deterioration after normalization and of survival of central field islands despite nonnormalization may make the treatment of glaucoma appear more discouraging and complicated than it actually is. For while it is true that in wide angle glaucomas of stage 2 or 3 in a goodly percentage of surgically normalized eyes the disease progresses at about the same rate as in eyes in which the tension has not been normalized, we must constantly remind ourselves that in at least 50 per cent of the surgically normalized eyes the course of the disease has been radically improved over what it would have been had the tension not been normalized. It is true that in many of these cases the amount of peripheral field preserved by treatment is not enough to rehabilitate the patient economically. Still, the preservation of even such small rests of visual function must be considered as very worth while objectively as well as subjectively. Surveys such as this one bring out clearly the two main aims in the field of glaucoma: (1) the early recognition of wide angle glaucoma in the entire population and (2) the recognition of the factors that determine the outcome of filtering operations.

---

[14] Brown, E. V. L.: Am. J. Ophth. 20: 1250, 1937.

Other aspects of the course of glaucoma, such as the formation of opacities in the lens in relation to glaucoma or glaucoma operations, the vascular diseases of the retinal and ciliary system secondary to glaucoma, changes in the capacity of filtering scars, the phenomena of direct and indirect operative loss of visual function will be dealt with in a later publication.

SUMMARY

The purpose of this survey was to determine on a representative group of cases the course of so-called primary glaucoma under the influence of treatment intended to lower the ocular tension. Because of gross differences in the response to such treatment, it was found advisable to separate the wide angle from the narrow angle glaucomas. The treatment accomplished normalization, seminormalization or nonnormalization of ocular tension. Only eyes that remained in that respective state for at least five years were included in this study. The course of the disease, whether stationary or progressive after normalization of tension, showed a strong dependence on the stage of the disease present when the normalization became effective. In eyes with early stages of wide angle glaucoma the course of the disease was closely dependent on the prevailing tension range, normalization of tension resulting in a high percentage of arrest of the disease ("cures"). Seminormalization of tension at an average level around 28 mm. was sufficient to preserve the existing visual function in two thirds of eyes with early wide angle glaucoma. Later stages of glaucoma, as had been shown recently by A. B. Reese and J. W. Burke, showed a strong tendency toward further progression of the disease despite normalization of tension. The very center of the visual field seemed to exhibit a specific resistance to the glaucomatous disease. The chances of survival after normalization of tension were estimated for the respective stages of the disease. It is hoped that these estimates will prove of value to the ophthalmologist.

ABSTRACT OF DISCUSSION

Dr. Algernon B. Reese, New York: Drs. Kronfeld and McGarry have divided their cases into deep and shallow angle glaucoma, and their analysis implicates the deep angle glaucoma as the greater offender in this phenomenon of progressive field changes in the presence of normal tension. Their figures are convincing. In wide angle glaucoma only 15 per cent of Group 1 cases progressed, and these were borderline group 2 cases, whereas 38 and 50 per cent respectively progressed in the cases of groups 2 and 3, and the progression was at about the same rate in eyes in which the tension was normalized and those in which the tension was not normalized. This is in contrast to narrow angle glaucoma, in which only 10 per cent showed progressive field changes with normalized tension irrespective of the stage of the disease. The screening of the cases from which they have made their deductions seems to me beyond criticism. The division of primary glaucoma into wide angle and shallow angle types is the soundest basic classification. The narrow angle glaucoma is due to some transitory functional factor back of the iris which pushes the root of the iris forward against the angle, while deep angle glaucoma is due to organic obstruction in the trabecular area. Histologic evidence indicates that this trabecular obstruction can be due to the secretion of a cuticular product of the endothelial cells lining the interstices of the trabecula (Reese, A. B.: Deep-Chamber Glaucoma Due to the Formation of a Cuticular Product in the Filtration Angle, *Am. J. Ophth* **27:**1193, 1944). The lamina vitrea is also a cuticular product, and it may be that deep angle glaucoma is characterized by an overproduction of the cuticular product of the eye. This might throw some light on the most interesting finding of Drs. Kronfeld and McGarry regarding the correlation in deep angle glaucoma between defective central vision and the progression of the field changes. They deduced that an eye with good visual acuity after normalization of tension has about twice as good a chance of retaining its visual function as has an eye with poor acuity. This relationship might be due to the fact that the same process which fills the interstices of the trabecula also causes a thickening of the lamina vitrea. This results in decrease in the permeability of the lamina vitrea sufficient to impair the nutrition of the retina, especially in the macular region where it is so dependent on the choroid for nourishment. The essayists have supported their main thesis with convincing facts. Almost every phase of the analysis so ably carried out by Drs. Kronfeld and McGarry points to the importance of early recognition and treatment of primary glaucoma. This objective is most difficult to achieve in the deep angle type which is the type in which it is most important.

Dr. M. Elliott Randolph, Baltimore: Dr. Kronfeld states that the type of operation producing the normalization did not seem to be a factor. This observation is in partial agreement with the result of a series of glaucoma cases published a few years ago (1941) from the Glaucoma Clinic of the Wilmer Institute. This was a statistical study, essentially a comparison between the end results of trephine and iris inclusion operations, in a carefully selected group of cases. It was found in late cases which Dr. Kronfeld would consider stage 3 and late stage 2, whether wide or narrow angle, the results were identically poor with either operation. In stage 1 of wide angle glaucoma, the trephine operation was successful in 85.5 per cent, and the iris inclusion in 80 per cent, not a too striking difference. However —and this is the point which I would like to stress—in stage 1 of narrow angle glaucoma, the trephine operation was successful in but 62.5 per cent, whereas the iris inclusion was successful in 88.2 per cent. It has, therefore, been our custom, with rare exception, never to do a trephine operation except in wide angle glaucoma. The various theories as to why there should be further loss of field and vision in "tension-normalized" eyes are fascinating. However, it would seem that such an eye severely damaged by long standing pressure can scarcely be called "tension normalized" by our standards. It is obviously not fulfilling the definition of normal as being that degree of pressure which the tissues of the eye are able to withstand without impairment of function. From the paper which we have just heard, it would seem that in tension-normalized eyes we can now predict with better accuracy statistically just what cases will be controlled and what cases will progress. In discussing Burke's paper referred to by the essayists, the late Dr. Gifford suggested that further progression was somewhat rarer in those cases in which the tension was low. This is true in the group which we studied. However, other than desperately using drops of all types—"furmethide" (furfuryl trimethylammonium iodide), "doryl" (carbaminoyl choline) "mecholyl bromide" (acetyl-beta-methylcholine bromide) and neostigmine and DFP (di-isopropyl fluorophosphate)—we rarely do anything else if the tension hovers around 25 to 30. In spite of the fact that we have assurance that some of these patients do not eventually go blind, it would seem that further surgical treatment is indicated. This excellent paper is great credit not only to the authors (Dr. Kronfeld and Dr. McGarry) but also to what is obviously a highly efficient glaucoma clinic from which these cases originated.

Dr. Louis Lehrfeld, Philadelphia: Like most statistical studies, there are shortcomings. Some time ago I was a statistician. I had been computing the mortality among Italians. I found in one town that the mortality was 50 per cent. In looking up the records, I found there were only 2 Italians, and 1 died. So in dealing with small numbers, one makes great mistakes. Of course, Dr. Kronfeld has a large series of cases, but when he compares a small series of 52, half of which are normal eyes, the 26 gives a percentage number that is greater than the original figure. I, too, had experience in statistical compilations. In the year 1936 I published a report of a survey on glaucoma in Wills' Hospital over a period of ten years, 1926-1935, in which I reported 1,875 cases of glaucoma that were observed over a period of ten years. In that series it was found that 27 per cent of the primary glaucomas were of the congestive type (what I would like to call the wet types of glaucoma) and 73 per cent were noncongestive or dry. Of course there are some cases that are neither in the dry stage nor the wet stage; they are partially dry and partially wet. For statistical purposes, I like to call the acute and chronic congestive glaucoma the wet type and the wide angle or the chronic glaucoma the dry type. The point of interest in Dr Kronfeld's paper is the fact he mentions that cases of glaucoma are treated medically and surgically Too many of us have the impression —and the textbooks sometimes mention it—that glaucoma is a surgical disease whenever and wherever one sees it. Dr. Kronfeld did not make such mention in his statistics. I am firmly convinced that glaucoma is not a disease to be treated by surgery alone. Furthermore, when we use the term medical and surgical treatment, we should not feel for one moment that the term "medical" is a definite entity or that the term "surgery" is a definite entity or quantity. I am still a little uncertain what Dr. Kronfeld means when he speaks of normalizing glaucomatous eyes. I can conceive of a diabetic patient being normalized, but that patient is still diabetic. I can conceive of a patient having a general hypertension being normalized, and still that patient is a hypertensive patient. In glaucoma, patients having normal tension still have the causative factors which produced the glaucoma. I have come to the conclusion that we are all operating at the wrong place for glaucoma. We are operating the corneosceral junction. We all know that that is where the obstruction occurs. It is my belief that the point of drainage should be further backward in the region of the pars planum of the ciliary, which I call the silent area of the eye.

Dr. T. D. Allen, Chicago: We who have been associated more or less intimately with the work of the Glaucoma Clinic at the Illinois Eye and Ear Infirmary for the past several years have been increasingly interested in the statistics and analyses that Dr. Kronfeld and his associates in that clinic have given us. The continuous study has entailed an enormous amount of work not only in the examinations but also in the grouping of records, so that scientific conclusions will become available for teaching purposes. The authors are to be congratulated for the graphic manner in which these conclusions have been portrayed, and I hope you will not only see his exhibit, but read the paper carefully. Some of us probably have not related the prognostic value of the classification wide angle and narrow angle glaucoma. We have known for years that the earlier the treatment is started, the better the prognosis is. We frequently tell our own patients that it is easier to stop a bobsled on the top of the hill than part way down, but the fact that we have almost twice as good a prognosis in narrow angle glaucomas as in wide angle glaucomas, no matter what treatment is given, may be the stimulus that some young man in this audience needs to improve on our concepts of the disorder, and, consequently, its management. On the other hand, it is interesting to learn by these statistics that our conception that some "tension-normalized" eyes proceed on their way to blindness means that ocular hypertension is apparently not the only etiologic factor in the disorder, although it may be the most important. We know that a patient with an emotionally disturbed personality is more difficult to control. Can there be a relationship between the causes of the emotional instability and this unknown etiologic factor? One point in the paper which might be further emphasized is the sparing of the area of central fixation in many eyes the fields of which have otherwise been destroyed. We have so often heard it said, "Don't operate if the peripheral field is gone or you will surely destroy the central field." Of the authors' 18 cases of surgically "tension-normalized" eyes in stage 3 when first seen, 15 continued to have good central vision, and in only 3 did this field succumb. It will be interesting to learn what another five or ten years will do to these patients as compared to the 9 or 12 patients who have preserved the central field, although the tension was not normalized. Five years' close observation of a great number of patients is a tremendous task, but, after all, five years is not long to a patient in middle life if he has chronic simple glaucoma.

Dr. Peter C. Kronfeld, Chicago: I am deeply indebted to the discussers for having shed so much more light on the material that we have presented here. Dr. Reese's theory that the obstruction of the trabeculum in the anterior portion of the eye may be paralleled by a similar degenerative process involving the lamina vitrea in the posterior segment is very interesting. I do not believe that Dr. McGarry and I are completely satisfied with the pure nerve fiber concept of visual defects in glaucoma. Especially since seeing the exhibit by Drs. Posner and Schlossman, we are more inclined to think in terms of a combined, nerve fiber and vascular concept of the field destruction in glaucoma. With regard to Dr. Randolph's comment, which I appreciate very much, we said little in our paper about the surgical means which were used to bring about the state of normalization. We did say, however, that the phenomenon of further progression after normalization occurred with more or less the same frequency after all three main types of surgical treatment, that is, corneosclerectomy, iridencleisis or cyclodialysis. Therefore, we felt that the type of operation had nothing to do with the phenomenon of further progression. Since Dr. Randolph mentioned the glaucoma survey from the Wilmer Institute, I would like to say that our own observations also indicate that in the eyes with very narrow, very crowded angles, the operation which is generally called iridencleisis, definitely fares better than the operations which come under the general heading of corneosclerectomy. I believe all corneosclerectomies need more "elbow room" than the operations that we call iridencleises. In other words, in crowded quarters the iridencleisis has a better chance to succeed than any form of corneosclerectomy. I speak of corneosclerectomy as a general term for any form of excision of parts of the fibrous coat in the anterior segment of the eye, the trephine being just one form of corneosclerectomy. I appreciate Dr. Lehrfeld's remark. Perhaps we should have put the word normalized in quotes. In the paper we have clearly stated our criteria of normalization. We are well aware of the fact that in many respects our series was too small, and it is for that reason that in all our slides we showed the actual number of eyes that exhibited the particular phenomenon so as to prevent any conclusions based on too few cases. I thoroughly agree with Dr. Thomas Allen that the period of observation of ten years or fifteen years would throw more light on the problem than our period of five years. However, the phenomenon of further progression after normalization is very evident at the end of the first year.

HORMONAL TEST FOR FETAL DEATH IN DISTURBED PREGNANCY

BERNHARD ZONDEK, M.D.
FELIX SULMAN
and
RYVKA BLACK
Jerusalem Palestine

When a woman begins to bleed during the first months of pregnancy, great care must be exercised in order to save the pregnancy, particularly if the patient has been suffering from habitual abortion. It is often possible to tide such patients over the critical period after weeks of bed rest combined with hormone and other treatment, thereby saving the lives of children who would otherwise be lost. On the other hand, even when the same precautionary measures and methods of treatment are employed, we frequently encounter failures resulting in abortus after the patients have had to neglect their home responsibilities to no avail for weeks and to undergo a series of costly treatments. We have hitherto had no clinical method for establishing the important differential diagnosis whether pregnancy may or may not be maintained in any particular case. Can this be decided by means of a laboratory test?

Since the discovery of the pregnancy test we have been considering this question, basing our analysis on the premise that with the death of the fetus the first

---

From the Gynecologic-Obstetric Department of the Rothschild Hadassah University Hospital and the Hormone Research Laboratory organ to die is the placenta, the cessation of the hormonal function of which must be demonstrable. Since gonadotropin is produced in great quantities during the earliest stages of development of the ovum, whereas estrogen first appears at a much later period (three to four months of pregnancy), it is clear that the demonstration of gonadotropin, and particularly of a drop in the production and excretion of this hormone, comes under consideration for our test. In cases of habitual abortion or threatened abortion the most important decision from a clinical point of view must be taken during the first months of pregnancy.

During recent years we have studied the hyperemia effect of gonadotropin on the ovary of the infantile rat [1] with the view of using this as a pregnancy test, and we have found that the cessation of placental function may be established with reasonable certainty by the titration of the patient's urine for the presence of the hyperemia factor (hyperemia titration test). In this way we have obtained a clinically useful test for determining whether a pregnancy with a disturbed clinical course may or may not still be saved. We believe that with the aid of this test curettage may be avoided and that pregnancy may thus be maintained in spite of bleeding in certain cases which would hitherto have been considered hopeless, and that, on the other hand, long drawn out and costly treatment may be avoided in cases in which the fetus is already dead.

The following are the biologic bases of the test, which is naturally founded on the hormone pregnancy test (Aschheim-Zondek test)[2]: (1) explosive flooding of the organism with choriogenic gonadotropin shortly after the implantation of the ovum; (2) demonstration of the excreted gonadotropin on the basis of specific ovarian changes in test animals, in particular hyperemia which leads to massive hemorrhage in the enlarged follicles (blood point, the anterior pituitary reaction II), and the formation of corpora lutea (anterior pituitary reaction III).

Zondek and Aschheim [1a,b] have shown that the implantation of anterior pituitary lobe or placenta or the injection of blood or urine from a pregnant woman into an infantile rodent elicits pronounced ovarian hyperemia and ultimately leads to the formation of blood points. The hyperemia effect differs in different species of rodents. In rabbits, for instance, it cannot be elicited at all; in the infantile mouse it is ambiguous, whereas in the rat the effect is clearcut. Hyperemia is the primary visible effect of the gonadotropic hormone and is demonstrable as early as two hours after the injection of chorionic gonadotropin.

The hyperemia effect of gonadotropin on the rat ovary and the use of this reaction for the diagnosis of pregnancy have been discussed in detail elsewhere.[1e] Eighteen to twenty-four hours after the injection of 2 to 4 cc. of pregnancy urine the hyperemia effect is well in evidence and is excellently suited for use as the basis of the diagnosis of pregnancy (with a margin of error of 1 per cent). The accuracy of the rapid hyperemia test is, therefore, not inferior to that of the original Aschheim-Zondek test carried out on the infantile mouse. In a recent study we showed [1f] the important role of a time factor in the production of hyperemia as a reaction to the choriogenic gonadotropin. A much larger quantity of gonadotropin (thirty times as much) must be given in order to elicit a positive hyperemia reaction within two hours than is needed to elicit such a reaction within ten hours after injection. The relation of the minimum effective dose to the time is shown by the figures in table 1.

TABLE 1.—*Relation of the Hyperemia Unit to the Time Elapsing Between the Injection of Gonadotropin Hormone and the Reading of the Response*

Time, hours	2	4	6	8	10	11	12	18	20	24
HU *	1	1	1	1	1	1	1	1	1	1
RU †	20	15	14	1	0.5	1	2	3	4	5
IU ‡	4	3	2.8	0.2	0.1	0.2	0.4	0.6	0.8	1

* HU (hyperemia unit) is the minimal quantity of gonadotropin yielding the hyperemia effect in the rat ovary.

† RU (estrus unit) is the minimal quantity of gonadotropin eliciting vaginal estrus in the rat. The RU was determined by parallel experiments.

‡ IU was computed from RU with the aid of our local calculation factor (1/5).

It follows that a given quantity of gonadotropin, which elicits a positive reaction after ten hours, may fail to do so after only two or six hours. It is understandable, therefore, that diagnosis of pregnancy on the basis of the hyperemia response was found to be 31 per cent erroneous in our Jerusalem rat strain at two hours, and 7.8 per cent erroneous at six hours but practically free from error at twenty-four hours after injection.[1e] The highest sensitivity is obtained at ten hours, but this sometimes represents a disadvantage rather than a merit, since false positive reactions may be encountered with this high sensitivity, and the dose of urine injected must be reduced from 2 to 4 cc. to 0.2 to 0.4 cc. In practice the eighteen to twenty-four hour test is recommended.

HYPEREMIA REACTIONS OF DIFFERENT STRAINS OF RATS

The possibility requires consideration that different strains of rats may differ from one another in their ovarian response to gonadotropin. The Jerusalem strain is well suited to use in hyperemia tests. One of us[3] studied the hyperemia reaction on a local strain of rats in Europe (Berlin) from 1933 to 1935, and found it difficult to diagnose pregnancy on the basis of the hyperemia reaction with that particular strain. In Jerusalem, on the other hand, such diagnosis of pregnancy presents no difficulty. Alexander Albert has informed us in a personal communication that the strain of rats employed in the Mayo Clinic is particularly sensitive to choriogenic gonadotropin, apparently much more so than the strain used by us in the studies discussed in this paper. An investigator wishing to carry out our test for fetal death must first test his strain of rats and must compare its hyperemia unit (H U) with its estrus-eliciting unit (R U) with regard to choriogenic gonadotropin, as shown in table 1.[4] It is possible that other authors will require smaller or greater quantities of urine than those employed by us (4 cc. to 2 cc.), depending on whether their rat strains are more or less sensitive to gonadotropin than is our strain.

---

[1] (*a*) Zondek, B.: Ztschr. f. Geburtsh. u. Gynäk. **90:** 378, 1926. (*b*) Aschheim, S., and Zondek, B.: Klin. Wchnschr. **7:** 1404, 1928; **7:** 1453, 1928. (*c*) Zondek, B., and Aschheim, S.: Arch. f. Gynak. **130:** 27, 1927. (*d*) Zondek, B.: Die Hormone des Ovariums und des Hypophysenvoederlappens, ed. 1, Berlin, Julius Springer, 1931, p. 131; ed. 2, 1935, p. 202. (*e*) Zondek, B.; Sulman, F., and Black, R.: Hyperemia Effect of Gonadotropins on Ovary and Its Use in Rapid Pregnancy Test, J. A. M. A. **128:** 939 (July 28) 1945. (*f*) Zondek, B., and Sulman, F.: J. Clin. Endocrinol, 1947, to be published.

[2] Footnote 1, *a*, *b* and *c*.

[3] Zondek, B.: Die Hormone des Ovariums und der Hypophysenvorderlappens, ed. 2, Berlin, Julius Springer, 1935, p. 563.

[4] It is easily possible to bring the hyperemia unit (*HU*) into quantitative relation to the estrus unit (*FSH*); e. g., eleven *hours* after the *injection* 1 hyperemia unit corresponds to 1 estrus unit.

TECHNIC OF READING THE HYPEREMIA REACTION

The importance of the time factor has already been stressed. Here it is sufficient to state that the hyperemia test becomes sensitive enough to be relied on only eight hours after the injection. Injections must be given subcutaneously, never intraperitoneally. In opening the rats internal bleeding must carefully be avoided, as this may sometimes render reaction uncertain or even negative. Rats should be killed with ether, chloroform or illuminating gas. The color of the positive ovaries should be red and should resemble that of the kidney, liver or spleen. A control reading must be performed some minutes after the first reading of the reaction. Hyperemia reaction of only a single ovary is always open to suspicion as an unspecific reaction and should not necessarily be interpreted as a positive reaction.

NORMAL PREGNANCY

In the diagnosis of normal pregnancy the following technic is employed with our strain of rats. We use 2 infantile rats, 3 to 4 weeks old, weighing 25 to 30 Gm. each. The first receives two injections of 2 cc. of urine at an interval of one hour; the second receives two injections of 1 cc. of urine at an interval of one hour; 250 and 500 hyperemia units (HU) of gonadotropin can be detected in this way. The reaction is read as positive for pregnancy if all the ovaries of the injected animals present a typical hyperemia; i. e., a red color similar in tone to that of kidney or spleen. In normal pregnancy the urine contains at least 500 hyperemia units per liter. If only 250 hyperemia units are detected, it is doubtful whether the fetus is alive, and a repetition of the test should be undertaken.

DISTURBED PREGNANCY

In cases of missed abortion, deficient development of the uterus constitutes an important diagnostic aid. But error may here arise from the fact that the last menstruation date is not known with certainty or is wrongly reported.

In threatened or habitual abortion accompanied by bleeding, the fetus may nevertheless still be alive and treatment may be necessary. In such cases diagnosis is extremely difficult. On the other hand, prolonged treatment of the patient is superfluous if the fetus has died. The diagnosis of extrauterine pregnancy will be discussed later.

Can the pregnancy reaction throw light on the course of a disturbed pregnancy? In our experience the use of the hyperemia titration test makes it possible to give an answer to this question in a high percentage of cases. The early months of disturbed pregnancy are generally characterized by the cessation of the placental production of gonadotropin and by an accompanying decrease in the urine titer of this hormone.

There are, however, cases in which, although the fetus has died, the excretion of placental gonadotropin (and estrogens) may still be sufficiently high to simulate the persistence of a living fetus (Zondek, 1947 [5]). In such cases the reaction will appear positive even though the fetus has actually died. Such cases will be out of our control, but this type of diagnostic error is less important than an apparent negative result in a case when the fetus is still alive. Repetition of gonadotropin tests in disturbed pregnancy should be made a routine procedure at weekly intervals. Significant decreases in the hormone levels (e. g., down to one tenth of the normal levels) will then give important diagnostic and prognostic hints.

HYPEREMIA TITRATION TEST

A significant finding in disturbed pregnancy is obtained by the use of the titration technic for the purposes of diagnosis (hyperemia titration test) as proposed by Zondek [1d] and applied by Rakoff [6] and others.

TABLE 2.—*Evaluation of the Hyperemia Titration Tests in Rats in Cases of Disturbed Pregnancy*

Rat 1 *	Rat 2 †	Rat 3 ‡	Rat 4 §	Diagnosis
+	+	+	+	Fetus living ‖
+	+	+	—	Fetus in danger; repeat reaction
+	+	—	—	Little hope; repeat reaction
+	—	—	—	Fetus dead

* In rat 1 4 cc. was injected, 250 hyperemia units per liter.

† In rat 2 2 cc. was injected, 500 hyperemia units per liter.

‡ In rat 3 1 cc. was injected, 1,000 hyperemia units per liter.

§ In rat 1 0.2 cc. was injected, 5,000 hyperemia units per liter.

‖ Between the fortieth and the eightieth day of pregnancy this result does not prove that the fetus is alive.

It has been pointed out that urine during the course of normal pregnancy, and particularly during the first five months of pregnancy, contains at least 500 hyperemia units per liter. If less hormone is found the conclusion may be drawn that the normal course of pregnancy is disturbed and that placental function is on the wane. We determine the hormone content of the urine within the range of 250 to 5,000 hyperemia units. Four infantile rats are employed (table 2): Rat 1 receives two injections of 2 cc. of urine at intervals of one hour; i. e., a total of 4 cc., equivalent to 250 hyperemia units per liter. Rat 2 receives two injections of 1 cc. of urine, a total of 2 cc., equivalent to 500 hyperemia units per liter. Rat 3 receives two injections of 0.5 cc., a total of 1 cc. of urine, equivalent to 1,000 hyperemia units per liter. Rat 4 receives two injections of 0.1 cc., or a total of 0.2 cc. of urine, equivalent to 5,000 hyperemia units per liter.

If all four rats show a positive reaction the fetus is alive. If rat 4 alone shows a negative reaction, the urine contains less than 5,000 hyperemia units and the life of the fetus is in danger. In such a case the test should be repeated a week later in order to ascertain whether there has been a further decrease in the titer. If such a decrease is observed, it is certain that the fetus has died, whereas if the titer has risen, the fetus is still alive. If rat 3 shows a negative reaction, the urine contains less than 1,000 hyperemia units per liter and there is little likelihood that the fetus is still alive. In this case, also, the test should be repeated in order to avoid error. If rat 2 shows a negative reaction, the urine contains less than 500 hyperemia units per liter and it is certain that the fetus is dead. We emphasize that in all these cases the test should be repeated, since the decision to terminate pregnancy operatively by curettage is a heavy responsibility and should not be reached on the basis of a single hormone test.

HORMONE TITER DURING THE PEAK PERIOD

Early in their investigations, Aschheim and Zondek [1b,c] showed that an enormous increase in the production of gonadotropin and in its excretion in the urine occurs a few days after the implantation of the ovum.

---

[5] Zondek, B.: Lancet 1: 178, 1947.

[6] Rakoff, A. E.: Am. J. Obst. & Gynec. 38: 371, 1939; Pennsylvania M. J. 43: 669, 1940.

Other authors[7] later showed that a second pronounced peak in horomone production and excretion occurs during the interval of forty to eighty days after nidation. During this peak period the titer rises from 10,000 to 20,000 to 100,000 to 200,000 or more hyperemia units per liter, and the use of the hormonal test for the diagnosis of disturbed pregnancy requires some caution during this time, since a value which indicates a living fetus if obtained outside the peak period may indicate the death of the fetus if observed during the peak period. For example, a 9 per cent decrease in hormone production in the peak period leads to a drop of 200,000 to 20,000 hyperemia units. Outside the peak period the latter value would be interpreted as evidence of a living fetus, whereas within the peak period it actually proves that the fetus has died. Values below 5,000 hyperemia units within the peak period are certain evidence that the fetus is dead. We arrive, therefore, at the following proviso in connection with the scheme set forth in table 2: If a positive reaction is obtained in the peak interval with all 4 rats, and 5,000 hyperemia units are, therefore, present per liter of urine, it is still uncertain whether the fetus is alive. If rat 4 gives a negative reaction (less than 5,000 hyperemia units per liter of urine), and certainly if rat 3 is negative in reaction (less than 1,000 hyperemia units per liter of urine), the test is even more reliable during the peak period than it is before or thereafter. The finding of less than 5,000 or 1,000 hyperemia units per liter of urine during the peak period indicates an enormous decrease in hormone production, and hence it points to fetal death with more certainty than if the same value be obtained outside the peak period.

EXTRAUTERINE PREGNANCY

In disturbed extrauterine pregnancy the anamnesis is not often dependable. An enlarged uterus and the presence of a tumor beside or beneath the uterus raises the suspicion of extrauterine pregnancy. If the extrauterine pregnancy is still developing, the hyperemia Aschheim-Zondek test of course elicits a positive reaction (reactions of rats 1 to 4 positive). If rupture of the tube or a tubal abortion has occurred and the fetus is dead, the placenta is only slightly functional and produces only follicle-stimulating hormone. The pregnancy reaction in such a case is negative, since luteinizing hormone is absent from the urine. Furthermore, the reaction to the hyperemia test, which depends on the combined action of follicle-stimulating hormone and luteinizing hormone, is also negative. For two weeks, however, follicle-stimulating hormone continues to be demonstrable in the urine and elicits an estrus reaction. It is, therefore, useful in the diagnosis of extrauterine pregnancy to combine the rapid hyperemia test with the original four day Aschheim-Zondek test for prolan A (FSH) in mice or, preferably, in rats. A positive follicle-stimulating hormone reaction (cornification in the vaginal smear) is then important, since it may determine whether a laparotomy should be made. We wish to emphasize, however, that in such cases the demonstration of a hematoma beside or behind the uterus is much less ambiguous as a basis for diagnosis than is the hormonal reaction. A definite diagnosis can be established in a matter of minutes by puncture of the Douglas pouch and by the aspiration of coagulated blood into the syringe. The hormonal test is necessary, therefore, only in cases in which diagnosis is difficult.

FETAL DEATH IN THE LAST TRIMESTER OF PREGNANCY

It is not definitely known whether the excretion of chorionic gonadotropin (prolan) in the urine during the last trimester of pregnancy always remains constant. Earlier reports have shown that there are cases in which excretion of gonadotropin diminishes considerably toward the end of pregnancy. Basing his analysis on his experience in Berlin, one of us (B. Z.) described the value of the gonadotropin test (Aschheim-Zondek test) in 1935 as follows[1d]:

> Only the cessation of the placental function can be established, and fetal death may be indirectly concluded from it. Hormonal tests have disadvantage that negative reactions are not reliable in the last months of pregnancy, when prolan excretion may be considerably lower and more inconstant than in the earliest weeks. In the last months of pregnancy the prolan content of the urine may sometimes be lower than *330 M.U. (660 R.U.)* per liter, so that the mouse exhibits an apparently negative pregnancy reaction.

Similar views were also adopted by Runge and Clausnitzer[8] and Fraenkel.[9]

In Palestine, where we have used the infantile rat for the Aschheim-Zondek test, we have not encountered cases of this kind, since excretion of follicle-stimulating hormone ante partum always ranged between 10,000 to 20,000 estrus-eliciting units per liter. When this value decreases considerably (to one tenth of the normal value) it indicates death of the fetus (at least in Palestine). Practice has shown that in the last trimester a negative hyperemia reaction demonstrates the death of the fetus, whereas a positive reaction may occur in spite of fetal death because the placenta is still functioning. Whether the applicability of the hyperemia titration test in diagnosis of fetal death is restricted to certain rat strains must be determined by control examinations in different countries.

The problem of diagnosis of fetal death becomes less important during the last months of pregnancy, when the auscultation of fetal heart beats becomes a reliable diagnostic aid. Still, there remain cases in which the fetal heart beats are not clearly audible. The hyperemia titration test and the determination of estrogen in the blood[10] remain of importance in such cases.

CASE MATERIAL

The observations made on the use of the hormonal test in the diagnosis of disturbed pregnancy are based on our experience in a series of 500 cases which we followed up clinically. We examined 160 cases of extrauterine pregnancy (125 ruptured and 35 undisturbed), 140 cases of threatened abortion (105 miscarriages, 35 brought to term), 200 cases of missed abortion (40 diagnosable by the first examination, 110 after two examinations and 50 after three examinations). Our results in this group warrant the conclusion that the hyperemia titration test is a valuable diagnostic aid in the determination of disturbed pregnancy.

---

[7] Laquer, F.; Döttl, K., and Friedrich, H., in Medizin und Chemie, Leverkusen, Bayer-Meister-Lucius, 1934, vol. 2, p. 117. Browne, J. S. L., and Venning, E. M.: Lancet **2**: 1507, 1936. Evans, H. M.; Kohls, C. L., and Wonder, D. H.: Gonadotropic Hormone in Blood and Urine of Early Pregnancy, J. A. M. A. **108**: 287 (Jan. 23) 1937.

[8] Runge, H. G., and Clausnitzer, C.: Zentralbl. f. Gynäk. **56**: 2450, 1932.

[9] Fraenkel, L.: Monatschr. f. Geburtsh. **88**: *263, 1931;* **89**: 131, 1931.

[10] Determination of estrogen in the blood (more than 200 mouse units per liter of serum), as recommended by Spielmann, Goldberger and Frank (Spielmann, F.; Goldberger, M. A., and Frank, R. T.: Hormone Diagnosis of Viability of Pregnancy, J. A. M. A. **101**: 266 [July 22] 1933), is another important aid in diagnosis for fetal death which should never be omitted. It has, however, the following shortcomings: (*a*) The estrogen titer of the blood begins to increase only after the third month of pregnancy; hence the test is not dependable before the fourth month of pregnancy. (*b*) The estrogen titer of the blood may remain high after primary fetal death with functional placenta. Cases of this kind have been described by Zondek.[5] Our experience with the Frank test has shown that less than *200* mouse units of estrogen per liter of serum indicate fetal death.

SUMMAR

The diagnosis of disturbed pregnancy on the basis of a hyperemia titration test employing gonadotropin excreted in the urine is described. The titration in rats of our strain is carried out on four rats, which received 4, 2, 1 and 0.2 cc. of urine, respectively, corresponding to titers of 250, 500, 1,000 and 5,000 hyperemia units per liter. The fact that different strains of rats differ from one another as to their response to choriogenic gonadotropin makes it necessary to use a strain with a constant reaction and to test it for its sensitivity to chorionic gonadotropin. The proportion between the hyperemia reaction and the estrus unit (prolan A or follicle-stimulating hormone) must be established (table 1), and the quantities of urine to be injected must be determined accordingly. According to whether the strain of rats is more or less sensitive than our strain, greater or smaller amounts of urine should be used.

If all 4 rats show a positive reaction, pregnancy is normal. If rats 1 to 3 react positively and rat 4 reacts negatively, the life of the fetus is in danger. If only rats 1 and 2 react positively, there is little hope for the life of the fetus. If only rat 1 reacts positively, the fetus is dead.

The decision to treat a pregnancy operatively by curettage should never be based on a single hormonal test. In every case in which a negative reaction is observed a repetition of the test should be undertaken.

In the period from forty to eighty days after the implantation of the ovum, during which there is an enormously increased hormone production (peak period), the fetus may be dead even though all 4 rats react positively. If all 4 rats show a positive reaction to urine taken in the peak period, an unambiguous diagnosis on the basis of the titration test cannot be made. However, a result is considered even more significant during the peak period than before or after it, if rat 4 alone or together with any or all of rats 1 to 3 shows a negative reaction, since this indicates a relatively greater decrease of gonadotropin during the peak period than before or after it and therefore points with additional certainty to the death of the fetus.

During the last months of pregnancy the titer of gonadotropin is not as constant as before, so that individual fluctuations which lead to a considerable drop in the titer of gonadotropin may occur. In the case of a negative result of the Aschheim-Zondek test we therefore recommend the addition of a blood estrone determination before fetal death is diagnosed. Hormonal diagnosis during the final months of pregnancy is of importance only in cases in which fetal heart beats are not distinguishable.

The Murmur Of Heart Block.—A systolic murmur in the mitral area in heart block is only found when the heart is greatly enlarged. It is a rough murmur and it may be loud. Posture is without much effect on its intensity although it is sometimes better heard when the subject inclines to the left. A thrill is never present unless there is mitral or aortic valvular disease as well—Evans: *British Heart Journal*, October, 1947.

SURGERY OF THE SEVENTH NERVE

THOMAS G. TICKLE, M.D.
New York

Paralysis of the facial nerve, so calamitous a disfigurement in a person's life, is also an incidence of economic, social and psychologic importance, since one loses "the language of facial expression," as Duel so aptly put it. Since the face is "the mirror of the soul," many surgeons have attempted to come to the rescue by surgical procedures. To the late Sir Charles Ballance, of London, must be accredited the first recorded case of successfully operating for the relief of facial paralysis. In 1895, he anastomosed the spinal accessory nerve with the facial. (Drobnick, in 1879, performed the same operation but did not record the case, although some of his confreres wrote about it.) Brilliant as were the results of the operations, the so-called emotional response was lacking; there was atrophy of the muscles supplied by the nerve together with disfiguring associated movements.

INTRATEMPORAL FACIAL OPERATIONS

Intratemporal facial operations were devised and carried out by Ney,[1] Martin,[2] Bunnell.[3] As a matter of fact, in 1930, Bunnell using a piece of the sural nerve from the leg bridged in a gap in the facial nerve, thus restoring function to the facial muscles. There is no doubt that the great advance in treatment of facial nerve paralysis is due to the research carried on during 1929 and 1930 by Ballance and Duel. In 1932, after having worked together on animals—and not knowing of Bunnell's experiment—they advocated a direct line repair as the operation of choice in facial paralysis due to injury of the facial nerve. This operation was first performed by them in 1931 on a baby—8½ months old—who had undergone a simple mastoidectomy in which most of the facial nerve had been removed at the operation. A piece of nerve taken from the external respiratory nerve of Bell was used to bridge the dehiscence in the facial nerve.

This nerve was used for the next 2 cases, but its use was abandoned because of the difficulty encountered in locating it. The intercostal nerve was then chosen and used in the repair of the facial nerve until it occurred to Duel that, if the piece of nerve were degenerated, the time of recovery might be shortened and the end results might be better, so the anterior femoral cutaneous nerve was utilized for this purpose.

The idea of degenerating the nerve was that when a nerve is cut and allowed to remain in situ for fourteen to twenty-one days, it undergoes what is known as wallerian degeneration, thus creating a set of empty tubules. Thus the cable was prepared for the neurons to grow down through these tubules to the distal end of the cut nerve. From 1932 to 1936 the procedure was to locate the anterior femoral cutaneous nerve, sever it and wrap a piece of gold leaf around it so that it easily could be found at the time of the next operation, then allow it to remain in situ for fourteen to twenty-one

---

Read before the Section on Laryngology, Otology and Rhinology at the Ninety-Sixth Annual Session of the American Medical Association Atlantic City, N. J., June 13, 1947.

[1] Ney, K. W.: Facial Paralysis and the Surgical Repair of the Facial Nerve, Laryngoscope **32:** 327 (May) 1922.

[2] Martin, R. C.: Intratemporal Suture of the Facial Nerve. Arch. Otolaryng. **13:** 259 (Feb.) 1931.

[3] Bunnell, S.: Surgical Repair of the Facial Nerve, Arch.Otolaryng. **25:** 235 (March) 1937.

days. This piece of nerve was then used to bridge the dehiscence in the facial nerve. Heteroplastic grafts were also used as graft material in 3 cases.

Inasmuch as it required a waiting period of two or three weeks and a second operation in these cases, blood types of patients were determined on their admission to the hospital, and those with the same type were considered suitable for this operation. One patient who had the nerve severed for three weeks was operated upon on the same day as 2 other patients admitted to the hospital three weeks later, whose blood type was the same. Sufficient nerve was taken from the degenerated nerve of this patient to bridge in the gaps found in all 3 cases. The irony of this experiment was that to the 2 patients whose degenerated nerve the donor had supplied, voluntary motion was restored; while for the poor donor who had willingly given of her degenerated nerve, facial paralysis remained. One might ask: "Is it more blessed to give than to receive?"

The time of recovery was no quicker and the end results were no better than when a fresh nerve was used. The reason for this I did not know until I met Mr. Bentley in London in 1936; he, when working in the laboratory of the Royal College of Surgeons, had experimented on cats, using both fresh and degenerated grafts of the same lengths. After voluntary motion was restored, the cats were killed and the grafts examined histologically. It was found that few neurons had grown through the empty tubules and that most of them had passed along the sheath. This explains why degenerated grafts produced no better results than fresh ones.

TYPES OF CASES

The cases suitable for operation are those in which paralysis is due to an injury or to the result of a toxic infection. The latter group includes some cases of paralysis of the facial nerve in connection with acute otitis media, acute mastoiditis, chronic mastoiditis, labyrinthitis and so-called Bell's or refrigeration palsy.

To determine which cases are suitable for operation, I rely not only on the patient's reaction to faradic stimulation, but on my experience gained over a period of sixteen years in the observation of several hundred cases.

A patient with paralysis of the facial nerve in which response to faradic stimulation has been lost—and the angle of whose mouth in repose is drooping—in my opinion should have the advantage of surgical treatment. Usually the angle of the mouth on the paralyzed side is lower than on the nonparalyzed side in a complete paralysis of the facial nerve, but when the angles are about even it signifies that there is a slender connection between the nerve segments above and below the site of injury; in other words, there is enough connection left to supply tonus to the oral muscle. I have seen a number of patients in whom the response to faradic stimulation was lost regain their voluntary motion in a few months' time. These are the cases in which it is most difficult to know just what procedure to advise the patient to follow. The history of the paralysis is of great importance: When did it first appear? Was it partial or complete when first noticed? Was the onset after a simple or a radical mastoidectomy? The answers to these questions determine in large measure the advice to be given to the patient.

Complete facial paralysis immediately after either a simple or a radical mastoidectomy nearly always means that the nerve has been badly damaged or severed, while that coming on several hours or days after the operation means that the nerve had been injured either by slightly tearing the sheath and injuring a few neurons, by pushing a spicule of bone into the nerve or by a hematoma in the nerve sheath which creates an edema of the nerve, the swelling of which shuts off the impulses going from the brain to the periphery.

In those cases in which paralysis appears immediately after a simple or a radical mastoidectomy, and in which response to faradic stimulation is lost within seventy-two hours, the nerve should be uncovered and inspected. (At this point, may I emphasize the importance of using some sort of magnifying loupe or magnifying glasses when uncovering and inspecting a nerve. I did not do this myself until a couple of years ago, and I am now sure that I have often injured a nerve more than was necessary when uncovering it, and I have, as well, missed some of the finer details that originally were responsible for some of the cases of paralysis.)

In a series of cases in which paralysis followed a simple mastoidectomy, I found it often due to the fact that the operator had gone too low in trying to locate the antrum and that, failing in this, he had made a new antrum just below the horizontal semicircular canal, thus cutting the facial nerve. In most of the other cases the nerve was injured when the operator was cureting the retrofacial cells, when he was probing the antrum too vigorously, or when, on enlarging it, he had attempted to curet some granulations from the floor. In only 3 of the cases did I find the nerve to have been injured outside of the mastoid foramen.

In cases in which the paralysis followed a radical mastoidectomy, the nerve was most often injured on the floor of the antrum, probably because of the thinness of the bone covering the nerve as it makes the bend from the horizontal semicircular canal across the middle ear. In some of the cases it was injured at the apex of the facial ridge as a result of shaving down the bone too far or in removing granulations in this area, because in many of the cases there was a dehiscence in the fallopian canal. One should curet granulations in close proximity to the facial nerve with the greatest of caution, always bearing in mind the possibility that the exposed nerve may be lying under these selfsame granulations. In 1 case in which I recently operated, the operator had mistaken the canal of the tensor tympani muscle for the facial canal and had cut the nerve just below the geniculate ganglion.

Preoperative paralysis is more frequent in chronic cases than in cases of acute suppurative otitis media. One explanation for this is that most of the cases are the result of a toxic infection, while those occurring from a chronic suppurative otitis media as a rule are due to an involvement of the nerve by an osteitic process. The ratio of 3 to 1 in favor of chronic suppurative otitis media—as cited by Kettel of Copenhagen[4]—is possibly too low, especially since the number of cases of acute suppurative otitis media has been greatly reduced in the past few years by the use of the sulfonamide drugs and penicillin.

TREATMENT

Preoperative paralysis of the facial nerve in cases of acute otitis media is of itself no indication for operation, any more than are cases of so-called Bell's palsy, because the paralysis is usually due to edema or toxic neuritis; however, if there is a quick loss in faradic response, and any indication of a mastoid involvement, then operation is clearly indicated. A simple mastoidectomy should be performed without a decompression of the facial nerve. Should the paralysis still persist after a period of two months following the simple mastoidectomy, then one should consider decompression of the facial nerve.

---

[4] Kettel, K.: Facial Palsy of Otitic Origin, Arch. Otolaryng. 37: 303 (March) 1943.

In cases of chronic suppurative otitis media the situation is quite different, for there the paralysis is most often due to a propagating osteitis. I concur with others that a radical mastoidectomy is indicated. So far, decompression of the nerve in all these cases is a debated question, and I am sure that I cannot supply the answer, but I am certain that if there are loss in faradic response, a fistula in the facial canal, and any signs of an osteitis, one is justified in uncovering the nerve. If there is a faradic response and no fistula is seen, then one may be justified in waiting for about six weeks to see whether the paralysis shows signs of clearing up; if at the end of this time voluntary motion is not being restored, a decompression should be done. It is true that I have seen a number of cases in which the response to faradic stimulation was lost and in which the patient did not consent to operation; and yet the facial paralysis cleared up.

In the cases in which a decompression is done, I think that the nerve should be uncovered from the stylomastoid foramen up to the geniculate ganglion and the sheath slit over the entire exposed nerve. Prognosis in cases of paralysis of the facial nerve occurring in the course of chronic suppurative otitis media is far more serious than in cases of acute suppurative otitis media and especially so if the paralysis is treated conservatively.

TYPES OF OPERATION

The types of operation that I will discuss in this paper are those used in cases in which the nerve has been injured anywhere from the geniculate ganglion to the face: decompression; end to end anastomosis; nerve grafting. If on uncovering and inspecting the nerve one finds a slight injury to the sheath and some of the neurons, a hematoma or a spicule of bone driven into the nerve (of course, remove the spicule of bone!) all that is necessary is to slit the sheath and close the wound; if a dehiscence is found, then one must choose between doing a nerve graft or an end to end anastomosis: i. e., rerouting the nerve if possible. I prefer the nerve graft for two reasons: (1) my end results after a nerve graft have been just as satisfactory as when I did an end to end anastomosis; (2) in rerouting the nerve it is nearly impossible to get a dry ear because few of the granulations can be cleaned out of the middle ear without injuring the nerve.

The type of nerve used for the graft is of no consequence: It is the size of the nerve that is important because, if too large a nerve is used, the end results are apt to be less satisfactory. From my experience, I am not sure that using several small strands—or, in other words, what is known as a cable-graft—is not superior to using one nerve in a graft. I have used this type of graft in several cases, and nearly all have been satisfactory.

In cases in which a small strand of nerve is left, do not remove it, but slit the sheath above and below the injury and insert one or more strands. Do not use sutures in grafts or end to end anastomosis operations, unless in soft tissue, for their use tends to make more scar tissue and this possibly may be the cause of an unsatisfactory result. Glue to fasten the ends of the nerve together is unnecessary because there will be some bleeding at the time of the graft, so the patient furnishes his own "glue" which is just as good as any that is artificial, and possibly better.

An infected wound is no contraindication to doing a nerve graft or a decompression operation, for, in my experience, the results have been just as satisfactory as when there was no infection. If one waited for all infection to clear up, many of the patients with paralysis of the facial nerve never would have the benefit of surgery, especially those with paralysis following a radical mastoidectomy because in some of the cases suppuration never stops.

I wish to cite the case of Mrs. S., aged 56, who consulted me two weeks after she underwent a radical mastoidectomy that was immediately followed by a complete paralysis of the facial nerve. On opening the old cavity I found considerable granulation and some necrotic bone that had not been cleaned out at the first operation. The nerve was missing from just below the geniculate ganglion to below the horizontal semicircular canal. It required a graft of 16 mm. to bridge the dehiscence in the facial nerve, and the wound continued to suppurate; in spite of this voluntary motion was first noticed in four months' time. The suppuration continued together with the formation of cholesteatoma—in fact it became so bad that I told the patient she should consent to a second operation to which she did not agree. She continued treatment for two years until the cavity dried up, and so it has remained for the past five years. This patient has obtained one of the best results in any of my operative cases because she is 1 of 3 who can move the frontalis equally well on both sides.

CASES NOT SUITABLE FOR A DIRECT LINE REPAIR

When there is no response to galvanic stimulation, showing that the muscles either have atrophied or become fibrosed, I think that it is useless to operate. This muscle atrophying may cover a period of years. Sullivan[5] did report a case of fourteen years' standing in which cure was effected by a nerve graft, but in my experience it has been only some form of plastic operation that has obtained for the patient more symmetry when his face is in repose.

"BELL'S PALSY"

Assuming that 85 to 90 per cent of patients with "Bell's palsy" recovered spontaneously, there are 10 to 15 per cent that do not recover or recover only partially. These are the patients that should have the benefit of surgical treatment. The patients that are less apt to recover are those that suffer pain, especially over the temporal, zygomatic or postauricular region. In my opinion, all patients that lose response to faradic stimulation, and show no improvement in six weeks' time, should have a decompression operation: i. e., the nerve should be uncovered and the sheath slit from the stylomastoid foramen to the horizontal semicircular canal. It is not necessary to clean out all of the mastoid cells, but only enough to expose the descending portion of the facial canal.

In the cases that have gone on for several months or years, my attempts at decompressing the nerve have been discouraging; in cases in which I did a decompression early after the onset of the paralysis, the results have been most gratifying.

---

[5] Sullivan, J. A.: A Modification of Ballance-Duel Technique in the Treatment of Facial Paralysis, Tr.Am.Acad.Ophth. 41: 282, 1936.

FIRST SIGNS OF RETURNING FUNCTION

The patient will report that his friends and relatives say his "face is now looking better"; i. e., the mouth in repose is straighter: this can be attributed to the return of muscle tonus. The patient will often report that he feels a "creepy-crawling" sensation on the side of his face. When the patient is asked to open and close the eyes forcibly, a slight movement at the angle of the mouth will be observed. These movements will become stronger in a few weeks' time and one will be able to observe movement at the corner of the mouth without the patient's closing his eyes. The return of function will always be gradual.

POSTOPERATIVE RESULTS

The function of the frontalis muscle practically never returns, the explanation for which is supposed to be that the fewer contractile elements present in the frontalis muscle degenerate before innervation has been reestablished.[6]

The patient will not always be able to elevate the upper lip on the paralyzed as well as on the good side. There will always be a slight associated movement due to the splitting of the neurons, especially if the patient is asked to wink, and often there will be a slight twitch. This twitch, as well as the slight associated movement, often will be seen years afterward in the patients with "Bell's palsy" who have recovered spontaneously.

ABSTRACT OF DISCUSSION

Dr. Frank D. Lathrop, Boston: Dr. Tickle is to be commended for his lucid discussion of a subject that should be of primary interest to the otologic surgeon but which is gradually being assimilated by the neurosurgeons. This is regrettable in view of the fact that the well trained otologic surgeon is best prepared to restore the anatomic continuity of the facial nerve and to eradicate the pathologic process present in the middle or inner ear with which such palsies are commonly associated. It should not be expected that the physiologic function of the facial nerve will be returned to normal by the employment of any method of treating facial paralysis. Decompression, end to end suture and nerve grafting of the facial nerve, when possible, restore the physiologic function of the nerve to a variable degree in the majority of instances and permit the greatest possible return of emotional response. It is this aspect of the treatment of facial palsy that is of greatest concern to the patient. The maximum degree of emotional recovery can be attained only by the reestablishment of the original neurogenic pathway from the cerebral cortex to the facial musculature. As Dr. Tickle has mentioned, the degree of emotional recovery obtained following spinofacial and hypoglossofacial anastomoses is usually inferior to that attained with a direct line of repair and, consequently, these methods of treating facial palsy should be reserved for those cases of facial paralysis in which it is impossible to restore the anatomic continuity of the facial nerve. With respect to the importance of the faradic response in arriving at a decision as to whether the facial nerve should be explored, I am in agreement with Dr. Tickle. It should be understood, however, that failure of the nerve-muscle complex to respond to cutaneous faradic stimulation does not necessarily indicate that anatomic disruption of the facial nerve has occurred, but is indicative only of a physiologic interruption even though the nerve may be anatomically intact. Consequently, when the facial nerve is anatomically intact and exhibits a negative faradic response, spontaneous recovery from the palsy is not precluded. Experience with a number of battle casualties presenting facial paralyses revealed that in many instances the nerve-muscle complex failed to respond to faradic stimulation when tested in the usual manner but gave a positive response when stimulated with the patient under general anesthesia. This would seem to indicate that failure to obtain a positive response when the test is performed in the usual manner may be owing to inability of the patient to withstand the pain of a faradic stimulus of sufficient intensity to obtain a positive response without benefit of a general anesthetic. All patients tested in this manner whose course I have been able to follow had recovery subsequently from their facial palsy.

Dr. J. A. Sullivan, Toronto, Canada: What is important in the use of a graft is this singular fact, which can be most vividly seen under the dissecting microscope, that it is easier to mobilize and get accurate coaptation of nerve ends with a degenerated graft than it is with a fresh one, and that is my particular reason for preferring the use of a degenerated graft. The length of the graft is important. The entrance of neurofibrils through the proximal end of the graft is, as a rule, not impeded, but what does occur is the formation of endoneural scar at the distal end of a graft; with a long graft more time is afforded for this pathologic formation to occur. In a short graft this condition does not pertain. I agree with Dr. Tickle on the point that he utilizes for the determination of when and when not to operate. To be absolutely sure of the faradic response, it is necessary to expose the nerve directly and observe the results. Involvement of the seventh nerve may have been due to a recurrent acute reaction superimposed on the chronic process producing the paralysis. In regard to rerouting of the nerve, I most emphatically agree. I do not believe that the nerve should be rerouted. I prefer the use of a single nerve as a graft to that of the cable graft. I have done considerable work with the use of plasma, and I consider it a great adjunct and advise that it be used routinely in the approximation of graft to nerve. One only needs to observe this under the dissecting microscope to become firmly convinced of its practical value. As power cannot be restored to muscles which have undergone fibrous atrophy, absence of galvanic response is a contraindication to any operative treatment directed to the nerve supply. What is perhaps less well appreciated is the possibility that fibrosis may involve parts of the small muscle bundles of the facial musculature, interfering with that synergic contraction within the larger functional muscle groups that gives rise to the infinite variety of expressive movements. This fibrosis may also be responsible for the nonreturn of movement to the frontalis muscle after the graft operation; i. e., in cases in which the muscle is necessarily denervated for a relatively long time, in contrast to the early return of movement in this muscle in cases in which recovery occurs without surgical intervention.

DR. THOMAS G. TICKLE, New York: I agree with Dr. Lathrop that surgical treatment of the facial nerve should be in the hands of the otologist. As he mentioned, the surgeons do not know a mastoid as well as an otologist. Dr. Sullivan thinks a degenerated nerve better than a fresh one, but my results have not been any better. Maybe it is because I have not been using the dissecting microscope, but in my approximation, I think it has been just as good in a fresh graft as a degenerative graft. In monkeys, my colleagues and I used to cut the nerve and test them out every hour. We found that the response would be lost in forty-eight to seventy-two hours after the nerve had been cut. We never found one case in which the period was longer than seventy-two hours.

Medical Officers Certified By Boards.—During the last few months forty-two officers of the Regular Army Medical Corps have been certified by American Boards as a result of the Army's training program. A total of fourteen specialties are represented in this number, internal medicine leading with a total of seventeen certifications.

---

6. Martin, R. C.: Surgical Repair of the Facial Nerve, Arch. Otolaryng. 23: 458 (April) 1936.

ANTERIOR OR PERINEAL PILONIDAL CYSTS

TOM E. SMITH, M.D.
Associate Professor of Proctology, Southwestern
Medical College
Dallas, Texas

When the term "pilonidal cyst" is used one immediately thinks of the pathologic hair-bearing cysts seen in the vicinity of the midline coccygeal region. The reporting of thousands of these cases in the literature, plus time, has made this anatomic location conventional, and it is difficult to think of a pilonidal cyst occurring in any other site.

In 1943 and 1944 4 cases of pilonidal cyst were seen which were located in the perineum, several inches anterior to the anal verge. These cases were interesting diagnostic problems since they were all sent to the Ano-Rectal Surgical Section of Brooke General Hospital with a diagnosis of "anterior anal fistula." Three patients had what appeared to be external fistulous orifices in the left anterolateral perianal quadrant, and 1 had an orifice located in the right anterolateral perianal quadrant. The orifices were situated from 1 to 3 inches (2.5 to 7.6 cm.) from the midline.

At first it would seem easy to differentiate these perineal cysts from anal fistulas by simple palpation, but actually the results of palpation are as confusing as they are enlightening. Palpation in these cases failed to reveal an indurated cord leading into the anal canal. Occasionally anal fistulas with slow abscess resolution present the same picture. The same thing is also seen in fistulas that can be felt going toward the anal verge but which dip deep and pass between the outer and middle lamellae of the external anal sphincter muscle. Therefore palpation was not a conclusive diagnostic criterion in these cases.

At this stage some will say that use of the silver probe would make the decision, but probing gave little information since a probe passed into an unresolved fistulous abscess will pass in many directions just as it does when it is inserted into a cystic cavity. Here a word regarding sympathy for the patient is in order. Probing near the anus in the unanesthetized patient is a painful and sweat-provoking procedure and is one which should be condemned. It certainly puts a strain on the relationship between patient and doctor and is apt to make the patient feel that he is in the hands of an unthoughtful surgeon. If probing is considered essential toward diagnosis by the surgeon, then saddle block anesthesia should be used. This will relieve the patient of pain and tend to lessen false interpretations by the surgeon.

The bacteriologic study of the exudate from all fistulas was a routine on the surgical service at Brooke General Hospital, and this measure was found to be of importance in the differential diagnosis. Lieut. Col. Max Levine, Chief of the Bacteriology Section, advised applying a layer of tincture of iodine over the orifice area and allowing it to dry. Then with sterile technic the exudate was expressed and studied. Coliform bacilli were not found in any of these cases of perineal pilonidal cysts, while they were universally found in the exudate from the external orifices of anal fistulas.

Methylene blue was instilled into these patients after saddle block anesthesia. The anesthesia was used to prevent the stimulation to contraction of the powerful external anal sphincter muscle by the injection of methylene blue under pressure. In no case did the methylene blue appear at the dentate line in the anal canal. The blue solution was then washed out of the cavity with hydrogen peroxide. This was followed by injection of a chloriodized peanut oil preparation and the taking of flat plate roentgenograms. The roentgenograms showed a pooling in the perineum with no tract leading toward the anal canal.

The conclusive proof that these perineal cysts were of the pilonidal type was found at operation. Each cyst was strutted with methylene blue–hydrogen peroxide solution and excised en bloc. After the cysts were opened, hair was found in the cavity, and microscopic study later revealed the same structure as that seen in coccygeal pilonidal cysts.

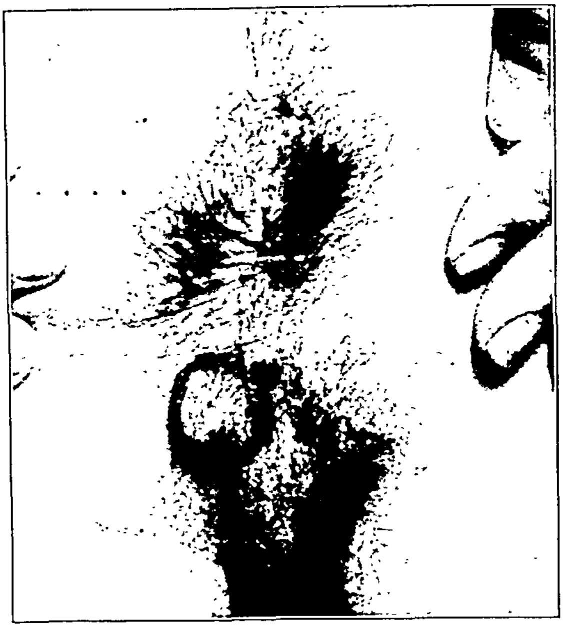


Fig. 1 (case 1).—Anterior pilonidal cyst. Limits of induration are shown by the dark circle. The cystic orifice is seen near the center of the circle. Note that all of the cyst is located on the left of the perineal midline.

These anterior or perineal pilonidal cysts should not be confused with postrectal or presacral dermoids, since they are different entities entirely. The postrectal dermoids are occasionally misdiagnosed as a conventional pilonidal cyst because in some cases their external vents come to the surface in the region of the midline coccygeal zone. A pilonidal cystectomy is done which is then followed by recurrence, since the true cyst was undetected. Postrectal dermoids should be thought of in cases of repeated recurrence following coccygeal pilonidal cystectomies. This was elucidated by Dr. Frank H. Lahey in 1934.[1]

SYNOPSES OF CASES

Case 1.—The patient, a private aged 35, was seen in April 1943. The external orifice was 2½ cm. to the left of the anterior midline approximately 6 cm. from the anal verge (fig. 1). The

---

Read before the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1947.

[1] Lahey, F. H., and Eckerson, E. B.: Presacral Dermoids, Am. J. Surg. 23: 30, 1934.

previously described procedures were done to differentiate from an anterior anal fistula. On April 6, with the patient under caudal transsacral anesthesia, the cyst was removed with electrosurgical technic and the perineal wound was left open. Light packing with an emulsion of sulfathiazole was done. The wound healed uneventfully in *thirty-five days.* The microscopic pathologic report stated "The section has apparently been removed with cautery and the edges are charred. The tissue submitted is hair bearing and is partially covered by stratified squamous epithelium."

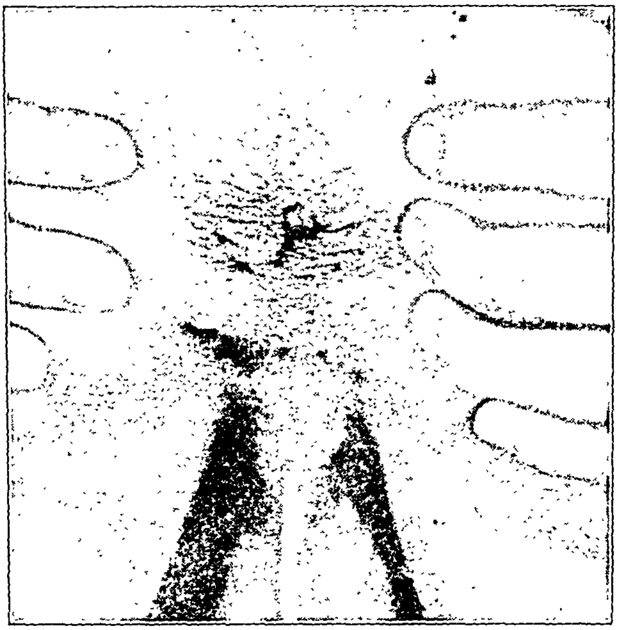


Fig. 2 (case 3).—Anterior perineal pilonidal cyst.

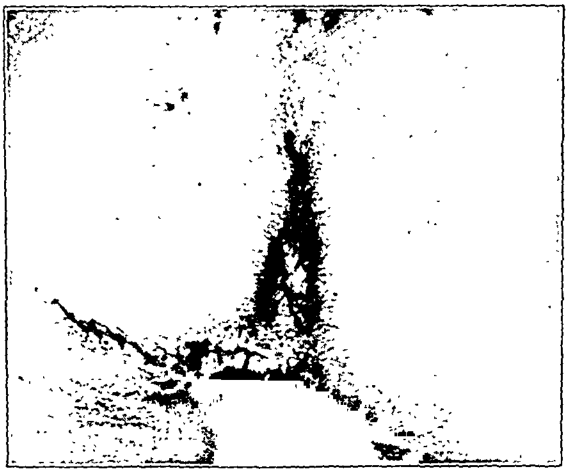


Fig. 3 (case 3). Showing interrupted cotton suture skin closure (closed method)

CASE 2.—The patient, a first lieutenant aged 29, was seen in April 1943. He had both coccygeal and perineal pilonidal cysts. A coccygeal pilonidal cystectomy was done on March 31, 1943, by the "closed method" devised by Dr. F. C. Shute, who was on active duty at Brooke General Hospital at that time. On April 30 the perineal pilonidal cystectomy was performed by the closed technic with cotton sutures. The perineal wound healed per primum. Sutures were removed on the seventh postoperative day. The microscopic pathologic report of the perineal pilonidal cyst stated "Multiple sections are taken to show various portions of a sinus tract. Throughout the major portion of its extent its wall is composed of dense fibrous tissue infiltrated by numerous lymphocytes and mononuclear cells. Near the center there is recent suppuration, associated with the formation of foreign body giant cells. At one or two points hair follicles are noted in the wall." A later report stated: "Multiple additional sections have been examined and very strongly suggest that an epidermal component is present in the cyst."

CASE 3.—The patient, a private aged 32, was examined in July 1944. Figure 2 shows what appears to be an anterior anal fistulous orifice. Perineal pilonidal cystectomy was done on July 13 with the patient under caudal transsacral anesthesia, the sharp dissection technic being used. Closure was done with chromic 1 and plain 0 surgical gut for deep suture and 70 cotton for the skin. Figure 3 shows the wound on the fifth postoperative day. The wound healed by primary intention. Figure 4 shows the excised cyst after opening for inspection. The microscopic pathologic report follows: "Multiple sections were cut from the tissue submitted and show a marked nonencapsulated zone of vascular granulation. In some parts this is apparently cystic. In one of the sections an occasional tangential fragment of hair is present."

CASE 4.—The patient, a sergeant aged 25, presented himself in October 1944 with a diagnosis of an anterior anal fistula. However, the induration and other findings led to a preoperative diagnosis of anterior *perineal pilonidal* cyst. Block dissection was done on October 6; the closed technic was used, with interrupted sutures of plain 00 surgical gut for deep closure and interrupted dermal sutures for the skin. The sutures were removed on the seventh postoperative day. The gross pathologic report was: "The specimen consists of a previously sectioned segment of skin with subcutaneous tissue that measures 3 by 0.7 by 0.7 cm. The skin surface is rough and slightly pink stained. Sectioned surfaces show an opened smooth membrane-lined area that measures approximately 12 mm. in length, from which project several long hairs." The pathologist commented: "The findings are compatible with a cyst partially lined with stratified squamous epithelium and partially by granulation tissue. The etiology of the process is not determined."

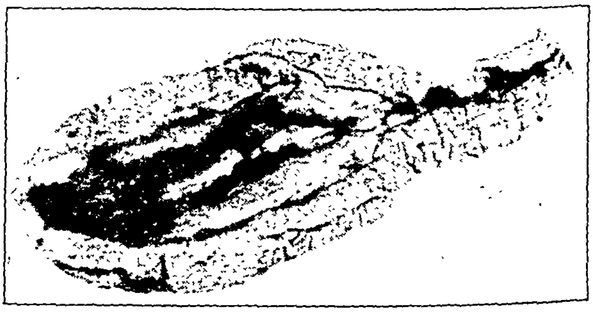


Fig. 4 (case 3).—Specimen after being opened.

Since hair was removed by me from each of these perineal cysts, it can be emphasized that these were hair-bearing or pilonidal cysts. Since hair is not always found in coccygeal or posterior pilonidal cysts, having either been washed out by suppurative exudate or been pulled out by the patient or examining doctors, it is possible in the future that anterior pilonidal cysts will be seen which are void of hair.

As none of these cysts had their openings in the midline and all had the major part of the cystic tissue on either side of the midline it seems difficult to explain them etiologically as being faulty midline ectodermal invagination, as suggested by Bookman in 1924.[2] The neurogenic theory of formation of pilonidal cysts as propounded by Tourneaux and Herrmann[3] in 1887 is dealt a death blow when pilonidal cysts are found on the anterior part of the perineum, for no embryologic vestige of the neural canal is normally located there. The soundest etiologic explanation of coccygeal or posterior pilonidal cyst has been given by Fox,[4] and his investigations and deductions could also account for the finding of pilonidal cysts in the perineum. Fox stated "that pilonidal sinus is a derivative of skin ectoderm and not neurogenic or enteric in origin, that the structures forming the sinuses are derived by a process of ectodermal invagination from the skin surface at the time and in cells destined to form skin appendages (hair and glands) during the third and fourth months of embryonic life and that its mode of origin and the analogy drawn between this structure and the special scent' gland in the sacrococcygeal region of birds and amniotes suggest the probability that the sinus represents a vestigial skin appendage developing at puberty —hence the age distribution of pilonidal sinus."

---

[2] Bookman, M. R.: Treatment of Sacro-Coccygeal Sinus (Pilonidal Sinus), New York State J. Med. 24: 204, 1924.

SUMMARY AND CONCLUSIONS

Since no report could be found of the location of pilonidal cysts in the anterior part of the perineum, 4 such cases were reported. The differential diagnostic points between anterior anal fistulas and anterior perineal pilonidal cysts were outlined. It was emphasized that anterior perineal pilonidal cysts were not to be confused with presacral dermoids (postrectal dermoids). Synopses of the cases involved were presented, with pathologic observations emphasized. Etiologic explanations were discussed.

SURGERY OF THE LOWER BOWEL

Preparation and After-Care of the Patient

HARRY E. BACON, M.D.
Philadelphia
and
ROBERT J. ROWE, M.D.
Dallas, Texas

The preparation and postoperative management of the patient undergoing surgery of the lower bowel has assumed a position of increasing importance to both the surgeon and the gastroenterologist during the past decade. The results of the clinical application of certain factors responsible for this metamorphosis have been well demonstrated in our series of patients with lesions of the colon and rectum, including over 600 with malignant growths in this region, and are summarized in table 1.

It is our opinion that this reduction in mortality following surgical procedures of this magnitude has been due largely to the advances that have been made in the preparation and after-care of these patients rather than to refinements in surgical technic. In this presentation it is possible to discuss only a few of the most important advances, which in our opinion have been chiefly responsible for these results.

PREOPERATIVE EVALUATION AND PREPARATION

In order properly to prepare the average patient for major surgery of the colon and rectum, it is preferable that he be hospitalized for several days prior to the operative procedure. During this time, an effort is made to evaluate the patient as a surgical risk and, so far as it is possible, place him in optimal nutritional, fluid, electrolyte, nitrogenous, and vitamin balance while the bowel is being prepared for surgical treatment. Efforts are made to evaluate hepatic and renal function.

TABLE 1.—*Deaths in Series of Patients with Lesions of Colon and Rectum*

	Cases	Deaths Number	Deaths Percentage
Mortality to January 1946			
Resections of all types excluding A. P. P. S.*	115	11	9.5
A. P. P. S.*	231	15	6.4
Total	346	26	7.5
Mortality from January 1946 to May 12, 1947			
Resections of all types excluding A. P. P. S.*	26	0	0
A. P. P. S.*	116	0	0
Total	142	0	0
Total Mortality to May 12, 1947			
Resections of all types excluding A. P. P. S.*	141	11	7.8
A. P. P. S.*	347	15	4.3
Total	488	26	5.3

* Abdominoperineal proctosigmoidectomy.

The presence of hepatic dysfunction was noted by one group[1] in 25 per cent of patients with gastrointestinal cancer. On a small scale similar studies were carried out by our department, but confirmation of such definite evidence of dysfunction was not demonstrable. It was interesting to note that contrary to previous reports,[2] the alkaline serum phosphatase reaction was normal in 10 patients with massive metastases to the liver. Occasionally definite evidence of hepatic dysfunction has been demonstrated by the sulfobromophthalein sodium or cephalin flocculation tests. If there is evidence of hepatic damage operation is delayed until an attempt has been made to remedy the condition.

TABLE 2.—*Preoperative Evaluation*

Routine Studies	Elective Studies
1. Complete blood count, hemoglobin and hematocrit	1. Blood sugar
2. Urinalysis (daily specific gravity with 2,500-3,000 cc. intake)	2. Hepatic function (a) Sulfobromophthalein sodium (b) Cephalin flocculation (c) Thymol turbidity (d) Prothrombin time (e) Alkaline serum phosphatase
3. Serum protein with albumin-globulin ratio	3. In obstruction, ulcerative colitis or dehydrated patients (a) CO_2 content (or blood p_H) (b) Blood chlorides (c) Blood sodium and potassium
4. Blood urea	4. Barium sulfate enema (when no obstruction is present) to determine the presence of other lesions
5. Weight, Kg.	
6. Daily fluid intake and output	
7. Medical and urologic consultation (including electrocardiogram and cystometry)	
8. Blood type and Rh factor	
9. Daily determination of blood pressure	
10. Photofluorogram of chest	

Anemia and hypoproteinemia, when present, are corrected immediately with whole blood, plasma and

---

3. Cited by Bacon, H. E.: Anus, Rectum, and Sigmoid Colon, Philadelphia, J. B. Lippincott Company, 1938, p. 747.

4. Fox, S. L.: The Origin of Pilonidal Sinus, with an Analysis of Its Comparative Anatomy and Histogenesis, Surg. Gynec. & Obst. **60**: 127, 1935.

Professor and Head of the Department of Proctology, Temple University Hospital and School of Medicine (Dr. Bacon) and Clinical Instructor in Proctology, Southwestern Medical College (Dr. Rowe).

Read before the Section on Gastro-Enterology and Proctology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J. June 12, 1947.

1. Abels, J. C.; Rebers, P. E.; Pack, G. E., and Rhoads, C. P.: Metabolic Studies in Patients with Cancer of the Gastrointestinal Tract, Ann. Surg. **118**: 366, 1943

2. Bullard, R. W. R.: Alkaline Phosphatase and Metastatic Liver Disease. Surgery **19**: 379-382 (March) 1946.

high protein intakes so as to provide an erythrocyte count of 4,500,000 with a concomitant hemoglobin of 80 to 90 per cent, hematocrit readings of 40 or above, and normal serum protein values. A minimum of 1,000 cc. of blood is made available for each prospective bowel resection. Although the average blood loss from abdominoperineal resection is only 450 to 500[3] cc., it has been our experience that at least 1,000 cc. of blood should be given during most abdominoperineal resections. This prevents shock and has enabled us to maintain a positive nitrogen balance with greater ease postoperatively.

In impending obstruction, or as an adjunct to primary resection, the mercury-weighted Miller-Abbott tube has proved eminently useful. However, if definite obstruction is present proximal enterostomy is advisable. In this group of patients it is imperative to establish fluid and electrolyte balance before surgical treatment is instituted.

A fluid intake of 2,500 to 3,500 cc. is maintained daily and renal function is tested by checking the specific gravity. If at least one specimen is not obtained with a specific gravity of 1.020 tests of renal function are initiated.

TABLE 3.—*Diet*

	Amounts in Grams			
	Carbohydrates	Protein	Fat	Caloric Value
Nonresidue diet	300	70	100	2,000
Carbohydrate protein mixture 1* derived from milk, 40 Gm. four times daily	50	80	0	520
Carbohydrate protein mixture 2† derived from milk, 120 cc. three times daily	57	39	3	420
Total	407	189	103	2,940

3 multivitamin capsules daily.‡ U. S. P. dosage or Upjohn "unicaps"
500-1,000 mg. ascorbic acid daily
100,000 units of vitamin A daily

* "Delcos granules" supplied by Sharpe & Dohme, Inc. Each hundred grams contains whole protein 50 Gm. and carbohydrate 30 Gm.

† "Protenum," supplied by Mead Johnson and Company.

‡ "Unicaps," supplied by The Upjohn Company. Each capsule contains nicotinamide, 20 mg.; vitamin A, 5,000 U. S. P. units; vitamin D, 500 U. S. P. units; ascorbic acid, 37.5 mg.; thiamine hydrochloride, 2.5 mg.; riboflavin, 2.5 mg.; pyridoxine hydrochloride, 0.5 mg., and calcium pantothenate, 5 mg.

PREPARATION OF BOWEL

Careful preparation of the bowel prior to surgical treatment with antibacterial agents and proper diet without purgation have undoubtedly been a significant factor in lowering the mortality following resection of the colon and rectum. The presence of avitaminosis and malnutrition—particularly hypoproteinemia—in patients with malignant growths of the gastrointestinal tract has been demonstrated repeatedly.

It is essential, therefore, to provide a well balanced, high protein, high caloric, high vitamin diet which yields no residue but contains adequate minerals and vitamins. Table 3 contains a diet which has served this purpose adequately.

Rectal irrigations are frequently necessary. For this purpose a solution is used containing 6 Gm. of phthalylsulfathiazole and 10 Gm. of sodium bicarbonate.

It is unnecessary to discuss in detail the use of the sulfonamide compounds. Phthalylsulfathiazole is our preference routinely, given in doses of 0.1 Gm. per kilogram of body weight daily. In some instances, when a moderate degree of obstruction is present, it has been proved advisable to use succinylsulfathiazole, since it possesses a laxative effect. Mention has been made that phthalylsulfathiazole decreases the bacterial count in fecal material to the point that synthesis of vitamin K is interfered with and increases hemorrhage during and after the operation. Such has not been our experience, but vitamin K is administered preoperatively and also postoperatively for twenty-four hours.

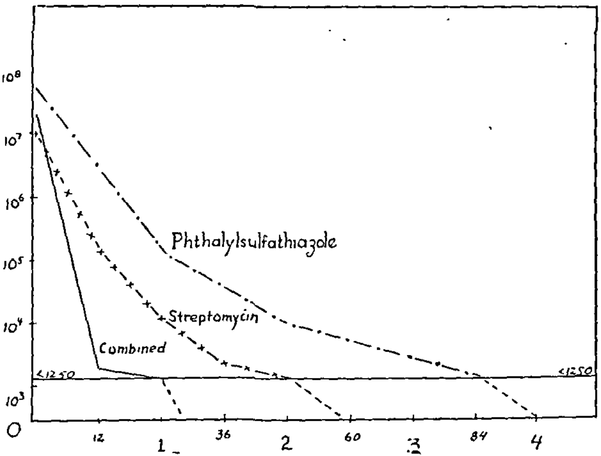


Chart 1.—Average coliform counts. The dosage of phthalylsulfathiazole was 0.1 Gm. per kilogram of body weight daily; that of streptomycin, 2 Gm. daily.

In regard to the use of agents for lowering the bacterial flora of the colon, it might be interesting to relate that our department, in conjunction with Professor Earl Spaulding, head of the department of bacteriology, and Miss Dorothy Madajewski, has been investigating the efficacy of oral administration of streptomycin.

The effectiveness of phthalylsulfathiazole, streptomycin, and a combination of the two in reducing the coliform organisms in feces is shown in chart 1.

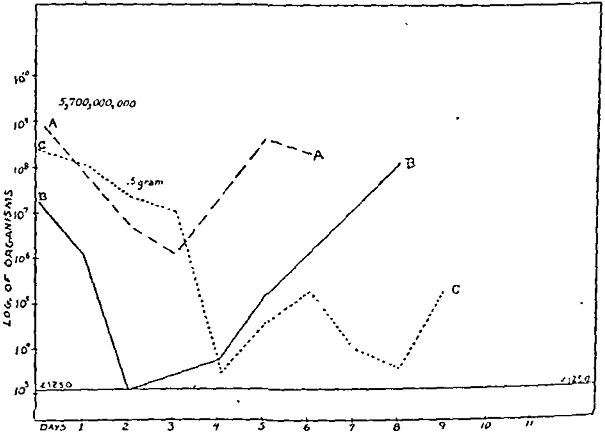


Chart 2.—Reversion curves. *A*, reversion of anaerobic gram negative bacillus; total bacterial count, combined therapy. *B*, reversion of Aerobacter aerogenes following combined therapy. *C*, Reversion following 0.5 Gm. of streptomycin.

All patients in this study had cancer of the colon or rectum. Results have not been absolutely uniform with any of the agents. In 1 patient of a series of 12, the count remained moderately high (12,500 organisms) after phthalylsulfathiazole had been used for ten days. One patient out of 10 failed to respond to streptomycin after five days' therapy. In the combined group, our study is incomplete and more detailed results will be published later. However, 2 patients

---

3. Coller, F. A., and Crook, C. E.: Blood Loss in Surgical Operations, J. A. M. A. **126:** 1 (Sept. 2) 1944. Pack, G. E.; Oppenheim, A.; Abels, J. C., and Rhoads, C. P.: Estimation and Significance of Blood Loss During Gastrointestinal Surgery, Am. J. Surg. **119:** 871, 1944.

of 9 did not respond in the usual manner. In both instances the count was less than 1,250 within forty-eight hours, but in 1 patient it fluctuated between 60,000 and 1,250 for eight or nine days before remaining below 1,250; in the other patient the count returned to more than 100,000,000 (chart 2, Patient B). A pure culture of a very resistant Aerobacter aerogenes was isolated, and later proved to be definitely pathogenic. From the studies it appears that combining streptomycin and phthalylsulfathiazole for preoperative preparation of the bowel has advantages over the use of either of the substances alone. This is true only with regard to the coliform bacteria. Other studies as well as recent investigation of our own with regard to total bacterial counts tend to disprove the theory that the coliform count is a reliable index to the colon bacterial flora. In fact further study may reveal that administration of the sulfonamide compounds or antibiotics may be harmful, although this is not our opinion at present. Reversion occurred in 2 patients when streptomycin was administered in daily doses of 0.5 Gm.

Chart 2 demonstrates the reversion (or resistance) that may develop after the use of combined therapy. This occurred after prolonged use of the drugs, and although our studies are not complete at present it would appear that combined use of these substances preoperatively should be limited to forty-eight to seventy-two hours.

POSTOPERATIVE MANAGEMENT

Regardless of the manner in which the patient has been prepared or the type of operative procedure performed, competent and alert postoperative care is necessary to maintain low mortality rates following resection of the lower bowel.

NUTRITION

In recent years nutrition of the surgical patient has attained a position of paramount importance. Intensive research in this field has resulted in the monumental discovery of protein hydrolysates which could be administered parenterally. Similar advances have been made in parenteral vitamin therapy in the use of plasma and blood, and our knowledge of water and electrolyte balance has been extended. These new advances have enabled the surgeon to eliminate the period of acute starvation following abdominal operations as well as to feed patients parenterally for long periods of time when necessary.

FLUID BALANCE

In estimating fluid requirements it is necessary to consider the average daily intake, the loss of fluids from the body—the estimable loss from the kidneys, gastrointestinal tract and Wangensteen suction, as well as the insensible loss from the skin and the lungs.[4]

In our experience the urinary output and clinical evaluation of the patient have been the most valuable indices to the status of the body water balance. In conjunction with this the erythrocyte count, hemoglobin, hematocrit, serum protein, carbon dioxide content, serum chlorides, urinary chlorides and specific gravity and p_H of the urine are necessary determinations for rational fluid replacement. All fluid losses from suctions, ileostomies, fistulas, etc., must be computed and replacement of similar electrolytic substances instituted.[5]

Attention should be called to the danger of salt intoxication,[6] since it has been demonstrated that patients do not tolerate large amounts of salt during the early postoperative period.

In the average postoperative bowel resection with gastric suction, 2,500 to 3,000 cc. of fluid containing 150 Gm. of carbohydrate and 9 Gm. of salt will maintain fluid and electrolyte balance with a urinary output of 1,000 cc. of 1.015 specific gravity.

PROTEIN NUTRITION

Proteins are the most important component of food, being essential for growth and repair of injury to the body.[7] The frequency with which hypoproteinemia occurs in patients with malignant growths of the gastrointestinal tract has been demonstrated repeatedly. Several[8] groups have called attention to the important part that protein metabolism, particularly hypoproteinemia, plays in wound healing, predisposition to shock, postoperative edema in wounds and surrounding suture lines, increased susceptibility to infection, anesthesia and hepatic dysfunction. It is therefore essential that an attempt be made preoperatively to increase protein reserves, and postoperatively to maintain a positive nitrogen balance. In our patients this is done with plasma, whole blood, and 60 to 120 Gm. of protein hydrolysate daily. Table 4 reveals the average regimen that is followed in patients who have undergone abdominoperineal resection.

TABLE 4.—*Regimen for Average Patient on First and Second Postoperative Day Following an Abdominoperineal Proctosigmoidectomy with Gastroduodenal Suction*

First day:	
1,000 cc.	5% dextrose in 0.9 per cent NaCl solution
2,000 cc.	5% dextrose and 5-6 per cent protein hydrolysate in water, or 0.2 per cent NaCl
3,000 cc.	Total intake, with 150 Gm. carbohydrate: 60-120 Gm. protein: 9-11 Gm. NaCl
Second day:	
1,000 cc.	5% dextrose in 0.9 per cent NaCl solution
250 cc.	Sixth-molar solution sodium lactate
250 cc.	Blood plasma and/or
1,500 cc.	5% dextrose in water with 60 to 90 Gm. of protein hydrolysate
3,250 cc.	Total intake, with 125 Gm. carbohydrate: 60-120 Gm. protein: 9 Gm. NaCl

USE OF ANTIBIOTICS

Penicillin is employed routinely after bowel resections in doses of 30,000 units every three hours. If contamination is present sulfones are used intravenously until they are tolerated by mouth.

---

[4] Maddock, W. G., and Coller, F. A.: Water Balance in Surgery, J. A. M. A. **108**: 1 (Jan. 2) 1937.

[5] Moyer, C. A.: Fluid and Electrolyte Balance, Surg., Gynec. & Obst. **84**: 586, 1947.

[6] Coller, F. A.; Campbell, K. M.; Vaughn, H. H.; Job, V., and Moyer, C. A.: Postoperative Salt Intolerance, Ann. Surg. **119**: 533, 1944.

[7] Youmans, J. B.: Nutritional Deficiencies, Philadelphia, J. B. Lippincott Company 1941, p. 233.

[8] Jones, C. M., and Eaton, F. B.: Postoperative Nutritional Edema, Arch. Surg. **27**:159 (July) 1933. Hartzell, J.; Winfield, J. M., and Irwin, J. L.: Plasma Vitamin C and Serum Protein Levels in Wound Disruption, J. A. M. A. **116**: 669 (Feb. 22) 1941. Binkley, G. E.; Abels, J. C., and Rhoads, C. P.: The Treatment of Postoperative Hypoproteinemia in Patients with Cancer of the Colon and Rectum, Ann. Surg. **118**: 748, 1943. Abels, Rebers, Pack and Rhoads.[3] Meyer, K. A., and Kozoll, D. D.: Protein Deficiency in [illegible] Gynec. & Obst. **78**: 181, 1944. Bacon, H. [illegible] Gass, O. D., and Wolfe, F. D.: The Preop[illegible] Treatment of Cancer of the Rectum and Pelvic Colon, J. Internat. Coll. Surg. **8**: 20, 1945. Lund, C. C., and Levenson, B. M.: Protein in Surgery, J. A. M. A. **128**: 95 (May 12) 1945. Elman, R., and Lischer, C.: The Occurrence and Correction of Hypoproteinemia in Surgical Patients, Surg. Gynec. & Obst. **76**: 503, 1943. Mulholland, J. H.; Co Tui; Wright, A. M.; Vince, V. G., and Shafiroff, B.: Protein Metabolism and Bedsores, Ann. Surg. **11**[illegible], W. D.; Ravdin, I. S., and Frank, I. L. [illegible] on Wound Disruption, Arch. Surg. **36**: 50 [illegible] J. E.; Fleigelman, M. T., and Panzer, L. M. [illegible] Wound Healing in Presence of Hypoproteinemia, J. A. M. A. **118**: 21 (Jan. 3) 1942. Jones, C. M.: Protein Deficiency, New England J. Med. **215**: 1152, 1936.

In the presence of infection the type of causative organism and its susceptibility to the antibiotics and sulfonamide compounds is determined before therapy is instituted.

THROMBOEMBOLISM

Since the introduction of the newer antibiotics and sulfonamide compounds, mortality from infection is almost an entity of the past. Hence the attention of surgeons has been drawn to other less frequent causes of death. Thus an unprecedented interest has arisen in thromboembolic disease. Although not at first apparent, the justification for this is demonstrated in our series. Five deaths due to pulmonary emboli occurred in 439 operations on the bowels.

For a period of over two years a rigid prophylactic regimen has been instituted. The results are shown in table 5.

TABLE 5.—*Thromboembolism*

	Bowel Operations *	Fatal Pulmonary Emboli	Mortality
Prior to August 1945....................	439	5	1.1%
Subsequent to August 1945............	246	0	0

Prophylactic measures:

1. Early active exercise of legs hourly when awake
2. Early unassisted movement in bed
3. No pillows under knees
4. Vigilant daily examinations for early signs of deep venous thrombosis of lower extremities
5. Early ambulation, from 2 to 5 days, depending on the operation
6. Elastic bandages in selected patient

ndications for anticoagulant therapy:

1. Tenderness over the deep calf veins; (*a*) Homan's sign; (*b*) Moses' sign
2. Unexplained concomitant rise in temperature and pulse; (*a*) Allen's sign
3. Previous embolic phenomena
4. Evidence of superficial or deep thrombophlebitis
5. Circulatory disturbance of the lower extremities
6. Cardiac disease

Therapy

1. Combination of heparin and "dicumarol": 20 cases
2. Femoral ligation: 1 case: no mortality

* Largely abdominoperineal proctosigmoidectomies.

OTHER POSTOPERATIVE COMPLICATIONS

With proper preoperative care and attention to replacement of blood lost during the operation, shock is encountered seldom. It has been our experience that whole blood is much more efficient in the prophylaxis and treatment of shock than plasma. Hemorrhage has not been encountered, although its occurrence after the use of sulfonamide compounds has been mentioned. For this reason synthetic vitamin K is used routinely for twenty-four to thirty-six hours postoperatively.

The incidence of adynamic ileus has been minimal since intestinal suction and high concentrations of oxygen have been used routinely postoperatively until peristalsis returns.

Atelectasis is one of the most common postoperative complications in our experience and is manifested early by a sharp rise in temperature. Treatment should be immediate removal of the bronchial obstruction by suction with intratracheal catheter or bronchoscopy.

Postoperatively continuous drainage of the bladder and frequent irrigations are used until vesical function has returned to normal as indicated by cystometry and the amount of residual urine present. Prostatic resection has not been indicated.

In regard to wound care and wound complications it may be said that with the use of alloy steel wire for closure, plus Babcock sump drainage, sulfonamide compounds, the antibiotics and vitamin C the incidence of complications has been reduced to a minimum.

SUMMARY AND CONCLUSIONS

In a series of four hundred and eighty-eight bowel resections, three hundred and forty-six were performed prior to January 1946 with 15 deaths (6.4 per cent) and one hundred and forty-two subsequent to that date and prior to May 12, 1947 with no deaths. It is our opinion that this reduction in mortality was due to careful preoperative evaluation, preparation and postoperative care.

Preoperative evaluation and preparation require several days, during which time an attempt is made to create optimal nutritional, fluid, electrolyte, nitrogenous and vitamin balance and a clean, tranquil bowel.

A combination of phthalylsulfathiazole and streptomycin constitutes the best preoperative antibacterial agent. The latter should be used for only forty-eight to seventy-two hours, since reversion occurs frequently.

Nutrition of the patient with particular attention to protein metabolism fluid and electrolyte balance is essential postoperatively.

Evidence is presented that intensive prophylaxis and anticoagulant therapy are adequate to prevent the occurrence of fatal pulmonary emboli.

Other postoperative complications are briefly discussed.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SMITH, BACON AND ROWE

DR. FRANK H. LAHEY, Boston: I would strongly urge on gastroenterologists that they do not send these patients to surgery so full of barium. There is nothing that makes it more difficult to resect a colon. Our gastroenterologists have done their utmost in these cases with castor oil and other vigorous intestinal evacuants, but it takes time and wastes beds in the hospital, and unless the patients are sent home, in many of the cases, and given time, they cannot be thoroughly emptied of their barium. There should be better planning as to the introduction of barium into the alimentary canal. I have had so much barium to deal with that in some of these cases the only way I could prevent the patient from being closed and reopened was to milk the barium into segments I could resect, in order to get rid of it, particularly in the sigmoid and in the rectum, where the lesion could be handled. I am sure that the administration of the sulfone group of drugs and streptomycin is desirable; however, yesterday at the Section on Surgery, mortality rates were reported to be about the same in the hands of those who employ them and in those who do not. On the other hand, we do not often employ suture methods in the large bowel and certainly not in the anastomoses in the pelvis and in the abdominal sacral region, and so it is of less importance to us. Regarding emboli, we have certain rules. We are not the ardent advocates of vein ligation that many others are. We have been able to maintain satisfactory figures as to pulmonary emboli with the use of anticoagulants. We have a rule that if the patient has had a two stage operation and there is a thrombosis or sublethal infarct emboli, in those cases a bilateral ligation must be done before the second major operative procedure is undertaken. There is one other thing. We must realize that many of these persons who are being submitted to these major surgical procedures are receiving transfusions while under an anesthetic; this does away with the opportunity to introduce small amounts of blood in order to observe the early evidence of mismatching. There are no evidences of mismatching in patients under anesthesia, and I believe if we knew the number who have died due to improper matching, from transfusions administered while under an anesthetic, it would be tremendous. We have had a small number. Think of the opportunity of a girl's passing through the ward, picking up several blood specimens; think of the opportunities for mistakes that can be made, and what actually hangs on them—a life, if a wrong tube is used and mismatching results. For that reason double matching is necessary in order to be absolutely safe in this group of cases.

Dr. Edgar J. Poth, Galveston, Texas: As regards streptomycin, I agree with Drs. Bacon and Rowe concerning the development of resistance.' It occurs in the course of three or four days; when streptomycin is used, it can be used for only a short period of time. Succinylsulfathiazole and phthalylsulfathiazole should be given for a minimum of seven days in full therapeutic doses to effect adequate preoperative preparation. If phthalylsulfathiazole is given, the simultaneous administration of a mild purgative is usually required to obtain an empty bowel and satisfactory mechanical preparation. Furthermore, the postoperative administration of these two drugs for twelve days will largely eliminate infections of the urinary tract. These slides illustrate the influence of succinylsulfathiazole and phthalylsulfathiazole on healing following anastomosis of the colon. The first slide demonstrates the edema of the mucosa extending for an inch (2.5 cm.) on either side of the line of suture. In the next slide it is obvious that the edema is present in only one or two folds of the mucosa to either side of the anastomosis. This animal received succinylsulfathiazole for two weeks preoperatively effecting a prolonged attenuation of the bacterial flora. These photomicrographs of sections from the line of suture on the third postoperative day show (in the control) edema, extensive polymorphonuclear infiltration, and no evidence of revascularization or fibroplasia. The next slide shows early healing with orderly fibroplasia, revascularization, slight edema and moderate polymorphonuclear infiltration. In brief, succinylsulfathiazole and phthalylsulfathiazole favor healing of the bowel.

Dr. Robert J. Rowe, Dallas, Texas: I should like to emphasize that prolonged oral administration of streptomycin may be very dangerous. This was brought forcibly to our attention when a fatal pelvic and abdominal peritonitis occurred in the patient whose stools contained the resistant Aerobacter aerogenes preoperatively. The same organism was isolated at autopsy and found to be resistant to the sulfonamide compounds as well as to streptomycin. No organisms resistant to sulfonamide compounds or streptomycin were isolated from the preliminary specimens of stool. This brings up the possibility that streptomycin may also increase the resistance of certain coliform organisms to the sulfonamide drugs. This series is entirely too small for definite conclusions. However, if streptomycin-resistant organisms occur in one third of the patients, the administration of streptomycin for longer than forty-eight hours would seem to be contraindicated. Since these results are at a variance with those published by another group, further study of this problem is indicated before the value of oral streptomycin can be estimated.

INNOCENT MITRAL SYSTOLIC MURMURS. The situation and distribution of these murmurs and the effects upon them of a change in posture and deep breathing make it possible to tell them from the murmurs of organic heart disease. The phonocardiograph confirmed this clinical classification and located the murmurs either in mid-systole or late systole; it also showed the absence in such cases of auricular systolic and diastolic murmurs. In patients with mitral stenosis the phonocardiograph showed that the murmur which presented clinically as a systolic murmur usually started during the P-R period of the electrocardiogram, that is, during auricular systole, as did the presystolic murmur. Even in the few exceptions where the murmur was later and coincided with the start of ventricular systole, the term "mitral incompetence" would have been incomplete as in each there was a mid-diastolic murmur giving proof of mitral stenosis. The common incidence of a mid-diastolic murmur immediately succeeding the third heart sound in mitral disease, for it was found in each of 74 cases, stimulates the clinical search for this murmur in patients suspected of the condition. Should future investigation show that this is an invariable graphic finding in mitral disease it will prove to be a physical sign of inestimable value.—Evan, British Heart Journal, October, 1947.

Special Article

REPORT OF THE MEDICAL MISSION TO PUERTO RICO AND TO THE VIRGIN ISLANDS

ERNEST E. IRONS, M.D.
Chicago

In May 1947 the Secretary of the Interior requested several members of the American Medical Association to consult with him about what measures might be taken to improve the medical care of the indigent in certain portions of the United States and outlying regions. At this conference, which included the Executive Committee of the Board of Trustees of the American Medical Association, Dr. Morris Fishbein and Dr. George Lull, the Secretary of the Interior, Mr. J. A. Krug, requested this group to organize medical missions to include those to Alaska and to Puerto Rico and the Virgin Islands. Dr. W. A. Morgan, attached to the office of the Secretary of the Interior, was made the secretary of this group and accompanied the mission to Puerto Rico and the Virgin Islands.

The mission to Puerto Rico and the Virgin Islands as organized included:

Dr. W. L. Benedict, Chief of the Eye Department, Mayo Clinic.

Dr. E. E. Irons, Internal Medicine, University of Illinois.

Dr. James McLester, Nutrition, Birmingham, Ala.

Dr. E. C. Person, Surgery, Cornell University, New York.

Dr. H. N. Sanford, Pediatrics, Presbyterian Hospital, and University of Illinois, Chicago.

Dr. G. M. Saunders, Epidemiology, Washington University, St. Louis.

Dr. John H. Willard, Gastrointestinal Diseases, University of Pennsylvania.

Dr. John Youmans, Dean of the University of Illinois, Tuberculosis and Nutrition.

Miss Edna Newman, Director of Cook County Hospital School of Nursing, Chicago.

Members of the mission saw many patients, including those suffering from surgical, medical and ophthalmologic difficulties.

Part of the commission reached San Juan, Puerto Rico, from New York on January 20, other members arrived a few hours later from Miami, Fla. We were met by officials of the health department, and as soon as the real intent of the commission was understood full cooperation was received from physicians and other officials. We at once conferred with Dr. Juan A. Pons and laid out a program of visits to various institutions by the members of the commission. In a number of instances the same institution was visited by two or three members, but it seemed important for each member of the commission to come in personal contact with as many physicians as possible. Dr. Morgan and I went to call on Governor Pinero. We got in touch with Acting Governor de Castro at

St. Thomas, Virgin Islands, and went by plane on January 23 to St. Thomas to arrange for appointments for all the members of the commission.

Contacts with the physicians of Puerto Rico were arranged for by means of round table conferences, a limited number of lectures and by arranging daily schedules for each member of the commission to visit hospitals and observe their general working and how they fulfilled the special functions in which the member of the commission was interested. On a number of occasions we met with larger numbers of physicians. We believed that the intent of the Secretary of the Interior probably could be best carried out by a combination of observations concerning medical conditions in practice and in hospitals and by the observation and examination of a limited number of patients in consultation with the physicians. For example, Dr. Benedict saw many patients with eye diseases in several hospitals in Puerto Rico and also those in St. Thomas and St. Croix, Virgin Islands; other members saw a number of medical and surgical conditions in which our advice was asked. From the reactions of the Puerto Rican and Virgin Island physicians, it is believed that the visit will encourage them and stimulate a better quality of medical service.

MEDICINE, ECONOMICS AND NUTRITION

The health of people is closely connected with their economics and nutrition. This is especially true of Puerto Rico and the Virgin Islands because in both groups there is a chronic condition of undernutrition; in fact, the greatest single factor in the health of the people of Puerto Rico is that of nutrition. The total food supply, including what is raised locally and what is imported with funds derived from sugar, is not adequately sufficient to feed the population. The only food not imported is sugar. Some improvement of the total diet of the people is being accomplished by educational methods in the use and preservation of foods and the use of fruits such as guavas and mangoes, which are available in season but often go to waste. Even with these comparatively minor dietary improvements, the total food supply available for Puerto Rico based on local production and present economy is becoming more inadequate. This is because the over-all economy of Puerto Rico is inadequate to support the rapidly increasing population. Figures based on death rates and birth rates indicate that with a population of something over 2,000,000 (620 per square mile in an agricultural community), the net population of Puerto Rico increases by 1 every eight minutes, or 65,000 every year.

Government expenditures by military personnel during the war temporarily improved the economic situation. This seems to have been reflected in a reduction of the death rate from 20 in 1937 to 13 in 1947. Another method of improving the economics has been suggested in the development of a tourist economy. Until recently the almost complete absence of hotel accommodations for winter tourists has prevented the use of a very pleasant climate to produce revenue from tourists. If the present definite increase in hotel accommodations could be augmented to a greater extent, a decided increase in revenue would result, particularly in and about San Juan.

Measures are being taken to increase the use of locally caught fish by the population, which would seem possible with the development of refrigeration systems.

EMIGRATION

Years ago a considerable number of Puerto Ricans were taken to the Southwest region of the continental United States. A similar attempt to move some Puerto Ricans to Hawaii was not especially successful. It is now suggested that emigration to South America and to Central America be considered. Some such programs might be partially successful; assuming that it would work, the removal of over 50,000 Puerto Ricans a year would be necessary to hold the population of Puerto Rico at its present level.

INCREASE IN INDUSTRIALIZATION

Progress has been made in establishing industries in Puerto Rico. The glass bottle and paper carton factories and the cement plant are examples, but such development as is possible cannot take care of more than a fraction of the increasing population. In the past certain industries have been established only to fail by reason of strikes fomented by labor leaders from the United States. The Wage and Hour law passed some years ago, with the best intentions as far as continental United States was concerned, interfered greatly with the needlework industry in Puerto Rico. Although this law was intended to help the underprivileged, it resulted in the accentuation of economic problems in many Puerto Rican families without correcting the difficulties.

EDUCATION

There are estimated to be 540,000 illiterate persons 5 years of age and over. In Puerto Rico the educational program is handicapped by the difficulty in getting qualified teachers. The original educational program which provided for English as the teaching language has now been modified so that English is one of the subjects taught and is not the language of teaching, especially in the lower grades. Many of the teachers have had limited educational preparation.

BIRTH CONTROL

In 1937 the transmission of information on birth control was legalized by the Puerto Rican Supreme Court, has limited such information to cases in which there are medical questions of health involved.

Now in 1948, there are twenty-seven birth control clinics but they have thus far had no demonstrable effect on the birth rate. The net reproduction index in Puerto Rico is 1.7, the highest in the world. In Belgium with the population density of 700 per square mile, the net reproduction rate is 0.75. The life expectancy in Puerto Rico in 1940 was 45 years.

MEDICAL SERVICE

There are about eight hundred physicians in Puerto Rico, at least two hundred of whom are in and around San Juan; rural districts are poorly supplied. This situation was accentuated during the war as it was in continental United States. It was reported that seventeen municipalities were without physicians. It is said that some sixty-four physicians were brought in from Cuba and Santo Domingo with the understanding that they should have temporary licenses only. The average performance of these physicians was far below standard. Most of these imported physicians did not go where they were expected to go. This importation also has been a source of irritation between the Puerto Rican Medical Association and the Insular Department of Health. This practice has been discontinued, and it is to be hoped that it will not be resumed; otherwise, standards of medical service in Puerto Rico will be lowered rather than raised.

A large proportion of physicians on the staffs of municipal and district hospitals are on a salary averaging from $300 to $450 per month. Many of these men give adequate service for value received; many more give service of poor quality. It is easy to understand how a physician in a municipal hospital, where he has nothing to work with and no encouragement, will deteriorate even though he receives a relatively good salary. Undoubtedly there will be improvement in many municipal hospitals when the standards of operation of the health centers become established. One solution of this question of service in municipal hospitals would be to place the responsibility for operation under the direction of the Insular Commissioner of Health. Such a change probably would be opposed by local political influence. The Commissioner of Health has a plan for rotating the rural physicians into the district hospitals. This would improve the performance of the physicians in rural communities.

RURAL COMMUNITIES

Members of the large strictly rural population between the towns must look to adjacent municipalities for such medical attention as they get. They have little transportation and no funds to pay for such as is available. In many of these regions there seems to be no possibility that a physician could make a living because of the extreme poverty of the people; the only alternative seems to be that of improving the care given through public health measures. Much has already been done to reduce the incidence of malaria and hookworm.

To carry health activities to rural communities, there have been set up fifty-five type A units (building, equipment and personnel) which operate sixty-five rural health units. In addition there are twenty-one type B, or purely public health, units. Many of these are associated with milk stations. Adequate supervision of those units is not available. In some which I saw in operation, the quality of service was extremely poor. In the past year an effort has been made to extend the training of personnel through scholarships, in service institutions, short courses, seminars, conferences and the like for the positions as nurses, sanitary engineers, sanitary inspectors, medical social workers, clerical personnel, physicians, public health aids, nurse-midwives, x-ray technicians, milk station aids and others.

HOSPITALS IN PUERTO RICO

District Hospitals—Five district hospitals operate in Puerto Rico: two others are planned, all under control of the insular government. Their operation has been vastly improved by the efforts of Dr. Juan A. Pons, who was made commissioner of health of the island about 18 months ago. The quality of work at the Bayamon District Hospital is excellent so that I believe most members of our commission felt that it justified approval of this hospital for intern and residency training. Next in order of excellence is the hospital at Arecibo. That at Fajardo at the eastern end of the island is well appointed but seems to lack personnel and internal harmony. It has been reorganized for a shorter time, and this may account for the deficiencies noted. The hospital at Aguadilla is not as well advanced in regard to organization as the others. Lack of personnel is the chief difficulty. The district hospital at Ponce is not well operated. On the whole, however, there has been an enormous improvement in the last two years in the operation of these hospitals and they are a credit to those charged with medical care in the island.

Municipal Hospitals.—The municipal hospital at San Juan is doing excellent work. The municipal hospital at Arragua, which I did not see, is said to be doing good work. In the remaining municipal hospitals in various towns the conditions of the hospitals and the kind of work done in them is not creditable. Apparently the difficulty is largely due to the political domination of hospital operation and the employment of physicians who have poor ideals or no ideals at all. Almost without exception there is an air of hopelessness and lethargy. In some hospitals the beds were dirty. Records were almost nonexistent. It is possible that in time the standards demonstrated in the district hospitals and in the smaller health centers may stimulate better work in the municipal hospitals. A much more important change would be to place the operation of municipal hospitals under the insular government. At present most municipal hospitals are as much a discredit as the district hospitals are a credit. This unfavorable opinion of municipal hospitals is supported by the comment on other municipal activities by the Commissioner of Health of Puerto Rico in his annual report 1946-1947, page 39.

OTHER HOSPITALS

There are two large hospitals for tuberculosis at Rio Piedras and a new hospital planned at Cayey. The hospital for the insane at Rio Piedras has accommodations for about 800 persons, but there are 1,400 patients. Dr. Fernandez-Marina, who has been in charge here only six months, received three years of preliminary training in St. Elizabeth's Hospital, Washington, D. C. He is doing good work under great difficulties. It is understood that plans are under way for the enlargement of this institution.

LEPER COLONY

There are 32 patients at the leper colony; in addition, 11 are on parole. This number of cases is said to represent about 10 per cent of the total cases on the island.

PRIVATE HOSPITALS

The Presbyterian Hospital at San Juan has one hundred and ten beds, is well run and has been a training ground for improvement of medical practice in Puerto Rico. St. Luke's hospital at Ponce has eighty-six beds, also the Pila Clinic has three hundred beds and does excellent work. A special hospital for the treatment of cancer in Santurce has seventy beds. Most of the patients here treated are indigent. There are a number of private clinics, sometimes with a small number of beds attached, in which those able to pay are treated. The vast majority of persons, however, are treated in public instutions.

HEALTH CENTERS

The new health center at Rio Grande has facilities for a dispensary, a milk station and a few beds for the local care of patients who do not require transfer to a large hospital. Fourteen such health centers are planned over the island under the direction of the insular government. It is understood that the funds are available and that in most instances the contracts for construction have been let.

MEDICAL EDUCATION

A survey made three years ago by Dr. Victor Johnson representing the Council on Medical Education of the American Medical Association suggested that if a medical school is established it should be established somewhere in the metropolitan area of San Juan-Rio Piedras. Shortly after this survey an act was passed by the Puerto Rican legislature authorizing the establishment of a medical school in Ponce. This law was vetoed by the governor on the ground that the provisions of the law were not well founded. It is understood that any establishment of a medical school has now been postponed. In the meantime, to afford needed medical education, some fifty scholarships have been established whereby Puerto Rican students may obtain medical education in the United States. There are about one hundred and ten such students now studying in medical schools in the United States and about fifty more supported by private funds. A difficulty has developed in that, with the pressure on the medical schools of the United States to receive veteran students, the number of places available for Puerto Ricans has been further limited. If places for fifty Puerto Rican students per year can be secured in the medical schools of the United States, the physician needs of Puerto Rico will ultimately be met.

The establishment of a satisfactory four year medical course in Puerto Rico would involve questions of standards in the basic sciences of the first two years which would be difficult to attain at present. Furthermore, the operation of a medical school for the first two, or basic science, years is expensive, and as yet there do not seem to be sufficient men available for the satisfactory conduct of the last two, or clinical years. This situation may change with the improvement in quality of service in the district hospitals.

PRACTICANTES

In addition to the physicians said to have medical training in Puerto Rico, there is another group of "practicantes." Many of these have acted as male nurses and gradually have expanded their activities so that at present there are about one hundred licensed male nurses and about one hundred licensed "practicantes," who attempt minor medical procedures. They also speak of themselves as minor surgeons and regard themselves as a distinctly professional class. Many of their performances are regarded as injurious to the persons on whom they work. In 1945 the legislature of Puerto Rico legalized the practice of "practicantes."

The unfortunate effect of such a law will be to impose on the poorest inhabitants the worst type of medical service.

GRADUATE MEDICAL STUDY

The education of a physician has only begun when he receives his diploma in medicine. Further progress depends on his own efforts to learn and on the facilities afforded him to improve his knowledge of medicine. This educational process can be carried on in formal school or in his daily practice in hospitals, provided these hospitals are properly operated. A teaching program in a hospital is a large factor in improving the quality of care given to patients in that hospital. The School of Tropical Medicine and the several bureaus of the insular government of health and hospitals afford training grounds for the development of better physicians.

THE SCHOOL OF TROPICAL MEDICINE

The School of Tropical Medicine, a graduate school, was organized under an Enabling Act passed in 1928 which provides for a joint effort between the University of Puerto Rico the insular government and Columbia University, New York. Within this past year Columbia University found it necessary for budgetary reasons to discontinue its contribution of $30,000 a year, and it was at first feared that Columbia would be forced to withdraw from the school. Arrangements have now been made whereby Columbia retains the same position under the Enabling Act as it did before but is obligated to pay only the salary of the director of the school. Present plans look toward the enlistment of interest from other American universities, which will be offered the opportunity to join in the program through Columbia University. Dr. H.W. Brown of Columbia is at present making a study of the possibilities for research at the School of Tropical Medicine. Considerable research is now going on at the school. An outline of the possibilities for research will be formulated by Dr. Brown and distributed to various universities which may wish to send students to avail themselves of the educational opportunity afforded.

The School of Tropical Medicine has been, in my opinion, the greatest single factor in improving educational standards in medicine in Puerto Rico. Many of the men now occupying important and educational positions in medical life of Puerto Rico date their educational progress from the stimulation received from study and residence in the School of Tropical Medicine. Columbia University also has availed itself of the opportunity for resident study by members of its faculty. Significant work has been done on diseases current in Puerto Rico such as sprue, filariasis, schistosomiasis and diseases arising from nutritional deficiencies. The School of Tropical Medicine remains the strongest single element for improvement of medicine in Puerto Rico. The present director is Dr. Morales Otero. The school operates a school of public health for the training of technicians and offers graduate training for physicians in public health. It operates a dispensary with about 20,000 patients a year. These are indigent patients who are referred by the mayors of the several municipalities who certify to their indigency.

SUMMARY OF MEDICAL CARE

The quality of medical care of the people of Puerto Rico has been greatly improved in the last ten years. Sanitation has been improved through the educational and engineering measures instituted by the Rockefeller Institute, the insular government and, more recently, by the Army and Navy medical corps. Medical care in governmental hospitals has been marvelously improved as far as four of the district hospitals and the municipal hospital in San Juan are concerned. The establishment of health centers similar to that at Rio Grande, of which ultimately there will be fourteen, will carry this improvement in medical care a step further out into the rural areas. The setting up of milk stations throughout the rural districts also has helped in the education of the populace in better methods of caring for themselves.

Against this very creditable improvement, there is the lamentable quality of care given in most of the municipal hospitals and the extremely sketchy medical care received by the inhabitants, particularly in rural districts. The quality of this care cannot be improved by the introduction of badly trained and ignorant physicians, especially those whom the governments of surrounding countries, whose own medical care needs improvement, are willing to export to Puerto Rico. While the quality of medical education and medical care in Puerto Rico is improving, more could be done with present personnel if some of the physicians now receiving relatively good salary were induced to give a day's work for a day's pay.

THE VIRGIN ISLANDS

Medical care of the indigent in the Virgin Islands, St. Thomas, St. Croix and St. John, is also closely connected with the economics and nutrition of the people. The population of St. Thomas is estimated as 16,000 to 18,000; that of St. Croix, 12,000; that of St. John, a few hundred. Agricultural possibilities in St. Thomas are slight; those of St. Croix are somewhat better, although the fertility of the land of St. Croix for the growing of sugar cane is inferior to that of Puerto Rico.

During the war the construction program of the Navy and the expenditure of funds by Navy personnel relieved the economic situation. Possibly the best answer for St. Thomas and in part for St. Croix would be a tourist economy. This would probably be proportionately more effective than a similar program in Puerto Rico.

One difficulty arises through the longstanding attitude of government toward the people. The Danes, who received the Virgin Islands as a present from the British in 1679, wished from the beginning to maintain the favor of the inhabitants, and when it was recognized that the children of the indigent needed help, milk was given away. After our Navy took over this free care was extended, but some persons who had a relatively good income also insisted on free milk and then free prescriptions; thus governmental care has increased progressively. It is obviously difficult to administer free care and free food and at the same time to maintain any sense of responsibility in the individual. The situation in St. Thomas is an

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - CHICAGO 10, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Twelve dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, APRIL 10, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors employed by the American Medical Association from their work continues. This issue of THE JOURNAL has been prepared largely by the use of Vari-Typer machines. Because of the difficulties of reorganization of the headquarters office necessitated by this situation, the editorial material in this issue of THE JOURNAL has been greatly condensed.

WHAT IS OSTEOPATHY?

In 1939 THE JOURNAL called attention to a case[1] in which the Supreme Court of Kansas entered a judgment ousting an osteopath from the practice of medicine and surgery and decreeing that his license to practice osteopathy permitted him to practice manipulative surgery but that he was not licensed or authorized to prescribe or administer drugs as remedial aids. The Kansas court said that the phrase in the osteopathic act which authorized persons licensed under it to practice osteopathy "as taught and practiced in legally incorporated colleges of osteopathy in good repute" could be construed only in this way. The court said further that if osteopathy had abandoned its fundamental opposition to drug therapy and operative surgery, as of the date of the enactment of the act, 1913, that fact never had been recognized by the legislature of the state of Kansas. The court next said that the statutes of Kansas recognized the "practice of osteopathy" and the "practice of medicine and surgery" as separate and distinct and that the use of drugs as remedial aids and the use of operative surgery did not, in 1913, form a part of osteopathy.

Both prior to the Kansas decision and since it was rendered the courts have without significant exception limited osteopaths, who are licensed as such, to the field in which they profess to specialize and in which they assert competency; legally osteopathy is a field of healing without the use of drugs and without operative surgery. The Kansas decision was of special importance because the osteopathic acts of several other states contain phraseology similar to that construed by the Kansas court. Apparently osteopaths had interpreted such laws as authorizing them to utilize any modality about which any instruction was given, however meager, in any "legally incorporated college of osteopathy of good repute," in any place at any time. Such an interpretation, if correct, would have provided a simple way of expanding the scope of osteopathic practice.

Even after the decision in the Kansas case, some osteopaths continued to invade the field of medicine and surgery and four successful injunction suits were filed to prevent this invasion. Not only have osteopaths in Kansas sought to practice medicine and surgery but also optometry. Here again the state Supreme Court told them to confine their practice to osteopathy.

Still insistent that their own construction of the Kansas laws prevail over that of the Supreme Court of Kansas, a number of osteopaths, including the four against whom injunctions have been issued, have recently joined in filing before a three judge federal court a complaint against the Governor and the Attorney General to restrain them from enforcing the section of the osteopathic act dealing with scope of practice, as construed by the state Supreme Court, on the ground that that section, as construed, is discriminatory and violative of their rights under the Constitution of the United States. An appeal lies direct to the U. S. Supreme Court from the decision of the three judge court, whatever that decision may be. Evidence in this case is scheduled to be heard beginning April 19.

The issues involved in this case are of tremendous significance not only to the state of Kansas and to those states with similar osteopathic laws, but possibly to all states. The final determination by the U. S. Supreme Court, it has been indicated, may well affect licensure laws generally. If the Supreme Court overrules the Supreme Court of Kansas, it will be entering into the control of medical practice. Then the osteopaths, without meeting the requirements all others must meet to obtain the right to practice medicine and surgery from the state legislature and from the state Supreme Court, would have a mandate from the U. S. Supreme Court granting them that right. The issue is worthy the attention of all who wish to protect the rights of individual states to control the practice of medicine within their own borders and also all who wish to maintain a high standard of medical practice in our nation.

---

[1] State ex rel. Beck, Atty. Gen. v. Gleason (Kan.), 79 P. (2d) 911; 83 P. (2d) 425; Editorial, The Journal, July 29, *1939, page 418.*

REGISTRATION OF CAUSES OF DEATH

State and federal vital statistics offices often experience difficulty in obtaining accurate information on death certificates. The Registrar of Vital Statistics, summarizing a recent study of death certificates filed in one state, notes that half of all the certificates filed were found to be defective in regard to medical certification of cause of death.

The types of defects were classified into three categories: obsolete or unacceptable terminology, incomplete reporting and inaccurate reporting. Obsolete or unacceptable terminology includes diseases reported under nondescriptive names when descriptive names are available, vague and ambiguous terms such as senility, stillbirth and heart failure. Incomplete reporting means the omission of one or more of the following items: type of organism, anatomic site, duration of illness and underlying causes. About half of all defects classed as incomplete reporting are due to the omission of underlying causes of the immediate cause of death. Inaccurate reporting involves confusion between direct and contributing causes, improbable cause order or improbable duration. The omission of underlying causes was the most frequent defect of this type.

The study compared the reporting in rural areas with that in the large metropolitan area located in the state. Both metropolitan and rural physicians filed certificates with about the same number of defects. A special anaylsis of over 100,000 death certificates suggested that a certain portion of the practicing physicians are responsible for a large share of the defective certificates.

These defects present a serious problem to all agencies that use vital statistics, particularly in view of the expected new "International List of Diseases and Causes of Death." The present plan is to classify all deaths by the underlying cause, abandoning the use of the "Manual of Joint Causes of Death." Physicians should become acquainted with latest rules concerning death certification if research in the field of vital statistics is to be successful.

Current Comment

TRANSMISSION OF EPIDEMIC GASTROENTERITIS TO HUMAN VOLUNTEERS

In the summer and fall of 1946 outbreaks of acute gastroenteritis appear to have spread from hospitals in New York to state mental hospitals and prisons.[1] During the next winter sizable outbreaks occurred in fifteen state institutions. In one institution the first cases were noted on December 16 and in about a month 589 cases with 7 deaths were observed in 2,623 inmates and 115 of 354 employees. The spread in this and other institutions was not apparently related to water, food or milk supply and seemed best explained by person to person infection. There are indications that the general population of upstate New York was also affected. The onset was sudden, with profuse, watery diarrhea, frequently with vomiting, usually without fever, the acute stage lasting on the average three days. Thorough examinations by bacteriologic and morphologic methods did not explain the causation of the disease, but in human volunteers, men 21 to 25 years of age, typical cases followed the oral administration of bacteriologically sterile fecal filtrates from patients with the natural disease.[1] The incubation of the experimental disease ranged from one to five days, with a mean of three days. Unfiltered washings from the throats of patients with the experimental disease likewise caused acute gastroenteritis in volunteers. Inhalations by volunteers of throat washings from patients with epidemic as well as experimental infections gave negative results. There seems to be no good reason to question the claim that acute gastroenteritis was transmitted to human volunteers. The experiments were made with completely adequate controls on all sides under the auspices of the New York Board of Health in Albany. The demonstration that the causative agent in the form of acute gastroenteritis here described is present in fecal filtrates of patients is an advance of fundamental importance in the study of such infections. Identification of the causative agent in question awaits further success in such study.

---

[1] Gordon, I.; Ingraham, H. S., and Korns, R. F.: Transmission of Epedemic Gastroenteritis to Human Volunteers by Oral Administration of Fecal Filtrates, J. Exper. Med. 86:409 (Nov.) 1947.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

April 6, 1948

Cancer Drive Launched in Constitution Hall

Dr. Morris Fishbein, Editor of THE JOURNAL, was one of several speakers who helped stars of radio and screen launch the annual cancer drive in famed Constitution Hall. On the speakers program with him were: Dr. Vannevar Bush, president of Carnegie Institute and chairman of the Research and Development Board of the National Military Establishment; House Speaker Joseph Martin; Federal Security Administrator Oscar R. Ewing; Douglas Poteat, executive vice president, American Cancer Society, and others. Dennis Day, singer on the Jack Benny program, brought his radio show, "A Day in the Life of Dennis Day," and was master of ceremonies on a program with Nancy Carroll, Ruth Chatterton and other theatrical luminaries.

Entry Into World Health Organization Delayed

Legislation that would make the United States a member of the World Health Organization was killed by a 5 to 2 vote of the House Rules Committee which had tabled the bill without explanation several weeks ago. Republican leaders who would not permit use of their names said that they opposed the bill because they considered it the opening wedge in an effort to have the United States pay medical bills of the entire world. A G.O.P. leader told newsmen: "The bill is dead and it is going to stay dead. The word to that effect has gone out and it will stick." Recently, Dr. Edward L. Bortz, President of the American Medical Association, has stressed the importance to this country of joining the World Health Organization. The Soviet Union joined last week, and only France and the United States are lacking of the twenty-six members of the United Nations needed to bring the constitution of the W.H.O. into effect.

Dr. Bortz declared that when this country does join, the United States and not the Soviet Union will become the dominant member. He stated: "I doubt very much whether the World Health Organization could succeed without the United States. The world needs our knowledge of nutrition, preventive medicine and sanitation, and we need the research results of scientists in other nations. Medical science knows no boundaries.

Nation Urged to Match Total War With Total Medicine

Col. Edgar Erskine Hume, U.S.Army, president of the Association of Military Surgeons of the United States, declared in his address as Kober Lecturer at the Georgetown University Medical School: 'We must mobilize our entire resources of preventative medicine and hygiene. All too often, our warfare against disease is defensive only.'' In other words, he proposed that total war calls for total medicine. Colonel Hume described war as the most terrible of all diseases, yet pointed out that medicine traced its advances through the "stimulus" of past wars. He remarked that the atomic bomb may not prove to be wholly a destructive weapon, as use of radioactive isotopes, byproducts of the manufacture of the atomic bomb, may produce epochal medical advances.

Health Institute Seeks Bethesda Site For New Center

The National Health Institute is negotiating for the purchase of 311 acres of land in Bethesda, Md., as the site of the proposed $40,000,000 medical research center, it was reported here. A Senate Appropriations Subcommittee was asked for a direct $5,000,000 appropriation to start construction this summer, with a contract authorization for another $25,630.000. The new research center would have five hundred beds and be devoted completely to the study of heart disease, cancer and other diseases. The completion date is tentatively set for July 1, 1951. Dr. R. E. Dyer, head of the institute, revealed that the government has already acquired 140 acres of land.

Additional Funds Recommended For Atomic Energy Commission

The House Appropriations Committee has endorsed increased programs of atomic energy research and has recommended that an additional $150,000,000 be added to contract authority for the Atomic Energy Commission. This extra amount was included in a $3,000,000,000 deficiency bill to make up deficits of various federal agencies. A total of $659,091,863 is now included in the commission's new contract authority. The House group urged the commission to "move forward with all possible speed in its research programs, both in the wartime and peacetime uses of the newly discovered secrets." Chairman David E. Lilienthal stated during hearings: "We have to assume, in the desperate state the the world is in, that it is our job to push ahead as fast as possible, not knowing how much time there is left."

Advocates School Health And Transportation Benefits

Senator Brien McMahon Democrat, of Connecticut, has introduced an amendment to the $300,000,000 federal aid to education bill which would extend school health and transportation benefits to all parochial and other tax-exempt, nonpublic schools. He proposed that a new title be added to the measure allocating $5,000,000 for nonpublic schools for purposes permitted under the constitution. He pointed out that under Supreme Court decisions, these are interpreted to be limited to transportation of pupils, school health examinations and related school health services and purchase of nonreligious instructional supplies and equipment

Thirty Washington Children Undergo Treatment for Mental Retardment

Officials of the Children's Hospital Welfare Clinic in Washington, D. C., reported that thirty children are receiving regular doses of glutamic acid, described as a new drug reportedly used in a previous mass test at Columbia University to aid mentally retarded children. Most of the children receiving treatment in the test here are much younger than the group in New York, where teenage subjects were said to have responded favorably.

Medical Legislation

STATE LEGISLATION

Arizona

Bill Enacted. —H.4-XXXXX has become chapter 33 of the Laws of 1948. It enacts an Arizona hospital survey and construction act for the purpose of conducting a survey of existing hospital facilities and a construction program for the building of additional needed facilities. The law provides for the appointment of an advisory survey and construction council, one member of whom shall be chosen from a panel of four submitted by the Arizona medical association and another member of whom shall be chosen from a panel of four submitted by the Arizona society of osteopathic physicians and surgeons.

Kentucky

Bill Enacted—S.158 was approved March 25. It creates a board of examiners for chiropody and defines chiropody as the diagnosis and the local, medical, mechanical and surgical treatment of ailments of the human foot, and massage in connection therewith, except amputation of the foot or toes, or the use of anesthetics other than local, or the use of drugs or medicine other than local.

S.342 was approved March 25. It creates a Kentucky Building Commission to have charge of buildings constructed throughout the state and provides that appropriations to this commission shall be used, among other things, for matching funds for hospital construction under any law now existing or that may be passed by the national congress.

Mississippi

Bill Enacted—H.386 was approved March 23. It provides for the appropriation of $510,000 to the state medical education board for the purpose of carrying out the provisions of the law relating to medical scholarships and loans

Bill Enacted—H.717 was approved March 23. It provides for the appropriation of $300,000 to defray the expenses of the state program of eradication and control of syphilis and other venereal diseases.

New York

Bill Enacted.—CCH A. Res 161 was adopted March 8. It continues the special joint legislative committee making a survey and study of the social, educational and physical problems of persons afflicted with cerebral palsy.

Bill Enacted. —S 1308 has become chapter 361 of the Laws of 1948. It amends the education law by repealing the existing definition of podiatry and enacting a definition as follows: A person practices podiatry who holds himself out as being able to diagnose ailments of the human feet by mechanical chemical and physical means and or as being able to practice minor surgery upon the feet within the following limitations· the practice of minor surgery shall not permit operations upon the bones, muscles or tendons of the feet or any other part of the body except operations for minor deformities of mechanical and functional nature, including the structures superficial to the deep fascia and including all structures of the terminal phalanges. It shall confer the right to treat for disease, pain, injury and deformity of the feet and it shall not include any other part of the human body. The treatment of fractures shall be limited to simple uncomplicated fractures of the phalanges and metatarsals The use of anesthesia shall be limited to local anesthetics for therapeutic purposes as well as for anesthesia, and the right to use nonnarcotic postoperative sedatives.

Virginia

Bills Passed.—H. 439 passed the senate March 11. It proposes to require every practicing medical doctor to obtain a revenue license. S. 106 passed the house March 13. To amend the medical practice act, it proposes to authorize the state board of medical examiners to suspend or revoke the certificate of a physician who has been the legally responsible head of a hospital the license of which has been revoked because of illegal practice or conduct or practices detrimental to the welfare of a patient therein by the state board of health. S. 107 passed the house March 13. It proposes to require the annual renewal of certificates to practice medicine, homeopathy, osteopathy, chiropractic naturopathy or chiropody on or before June 30 of each year

Bills Enacted.—H. J. R. 41 was adopted March 13 It directs the Virginia advisory legislative council to make a thorough study of the methods and practices of corporations and associations engaged in furnishing hospital and medical service on the prepayment plan. H. 354 has become chapter 205 of the Laws of 1947. It makes it unlawful for physician dentist or optometrist to practice his profession as a lessee of any commercial or mercantile establishment or to advertise, either in person or through any commercial or mercantile establishment, that he is a duly registered practitioner and is practicing or will practice medicine, dentistry or optometry as a lessee of any such commercial or mercantile establishment. H. 412 has become chapter 244 of the Laws of 1948. It amends the law relating to occupational diseases by including pneumoconiosis within the list of occupational diseases covered by the act. S. J. R. 27 was adopted March 11. It creates a committee to study medical education in general in the state and the relation of medical education to the services that it renders to the people. S 105 has become chapter 68 of the Laws of 1948. To amend the medical practice act, it proposes, among other things, to exempt therefrom interns and residents in legally established and licensed hospitals provided their practice is confined strictly to persons who are bona fide patients within the hospital or who receive treatment and advice in an organized outpatient department of the hospital to which ambulant patients regularly come for professional services rendered under the supervision of licensed members of the hospital staff. Such interns and residents, however, must have completed successfully the preliminary academic education required for admission to examinations given by the board in their particular field of practice or hold a valid license issued in a state maintaining standards acceptable for reciprocity with the state of Virginia. No graduate of a substandard medical school may be so employed except under particular circumstances.

Medical School To Televise

Northwestern University Medical School will use television to bring to the physicians and surgeons attending the annual session of the American Medical Association in Chicago, June 21-25, five days of programs showing both surgical procedures and clinical demonstrations. A committee composed of Drs. Walter Carroll, Stuart Abel and Henry E. Wilson Jr., all of Northwestern's medical faculty, announced that the week-long television program is the first of such magnitude utilizing video methods in medical education at the convention level.

Dr. Carroll said that among the surgical procedures to be televised will be obstetric and gynecologic procedures, including a cesarian section; the "blue baby" operation; early skin grafting in severe burns; gastric resection; surgery of the hand, and surgery of the chest. In addition, the video camera will reproduce a wide range of clinical material in the fields of internal medicine, orthopedics, cancer, dermatology, endocrinology and neurology.

A clinical demonstration concerning peripheral neural injuries will be conducted by Dr. Loyal Davis, chairman, department of surgery at Northwestern, and Dr. Lewis J. Pollock, chairman, department of nervous and mental diseases.

It is planned to broadcast the medical programs from 9 a.m. to noon and from 1 to 4 p.m. on each of the five days. The surgical procedures will be performed in two operating rooms of Passavant Hospital and the clinical demonstrations in adjoining classrooms. About fifteen hundred observers may witness a procedure simultaneously, six hundred in the Sheraton Hotel five hundred on the Navy Pier and four hundred at the medical school. It is estimated that about twenty-five physicians may see a program before each of the smaller screens, while the larger will accomodate about fifty. A television screen measuring 8 by 10 feet (244 by 305 cm.) now is being manufactured and has been promised to Northwestern for the convention period. This screen would accomodate an additional audience numbering in the hundreds.

GOVERNMENT SERVICES

AIR FORCE

DDT DUSTING DURING CHOLERA EPIDEMIC

Two C-47 transport planes equipped with DDT spray tanks flew a total of two hundred and six missions against cholera-carrying flies and malaria-carrying mosquitoes in Egypt, the Mediterranean theater and Germany during 1947. The Air Surgeon's Office, U. S. Army Headquarters in Europe, reports that from October 16, when they answered an emergency request through the United Nations' World Health Organization to help check the cholera epidemic in Egypt, until December 10 the C-47s flew a hundred and ten sorties over the cholera-affected districts of Cairo, Alexandria and neighboring villages.

During two months of serial spraying in Egypt, the transports, equipped with four 200 gallon tanks capable of saturating an area of 1 square mile with the spray in four minutes, sprayed 560,000 pounds of the DDT spray. Members of the two crews who worked seven days a week for two months in Egypt on spraying missions have all been commended by Lieut. Gen. Curtis E. LeMay, USAFE Commander. The DDT spraying, combined with other emergency measures put into effect by Egyptian health officials, turned the tide in combating the epidemic, which reached its peak October 25-27.

Last summer the USAFE planes flew ninety-six missions in the European Command and the Mediterranean theater, where the insect problem and the inaccessible low-flying terrain warranted the use of aerial spraying.

SPECIAL RESEARCH POSITION

The Air University School of Aviation Medicine, Randolph Field, Texas, is in receipt of an announcement from Headquarters Air Force, that the school has been allotted one of a limited number of special research positions authorized by Congress to attract outstanding scientists to service laboratories. The school of Aviation Medicine intends to utilize the new allocation, which carries with it a salary of $10,000 to $15,000 per annum, to establish a civilian position for a director of research. Inquiries concerning this vacancy should be addressed to the commandant.

NAVY

NEW REGULAR OFFICERS

The following naval medical officers have been cepted for transfer from the Naval Reserve to e Regular Navy: Lieut. (jg) John G. Esswein, New Provo, Utah; Lieut. (jg) John G. Esswein, New York; Lieut. (jg) John S. Neill, Valley Station, Ky., and Lieut. (jg) John M. Packard, Saranac Lake, N. Y.

The following physicians from civil life were recently commissioned lieutenants (jg) in the Medical Corps of the Regular Navy: Richard S. Clover Jr., Philadelphia; Clayton R. Entwistle, Philadelphia; Henry L. Hook, Newark, Ohio, and Arthur M. Tyson, Nashville, Ga.

The following physicians were recently transferred from the active Naval Reserve to the Medical Corps of the Regular Navy: Lieutenant Dominic A. Kuljis, of Bellingham, Wash., and Lieutenant (jg) Francis E. Hornbrook, of New Martinsville, W.Va. Comdr. Theodore E. Hoffman of Vassar, Mich., was recently transferred from the inactive Naval Reserve to the regular Navy Medical Corps.

The following physicians from civil life have been appointed to the Regular Navy Medical Corps as lieutenants (jg), temporary; George W. Kleinschmidt, Marietta, Texas; Norman B. Metcalf, Omaha; Frank Ostapowicz, Pittsburgh; Edward J. Rupnik, Library, Pa.; John G. Pifer, Pittsburgh; Carl M. Worley, Pittsburgh; William F. Harding, Pottsville, Pa.; Richard K. Loeffler, Rochester, N.Y.; Arthur R. Molar, Cincinnati; John H. Nickel, Warren, Ohio, and John R. Lee Jr., Brooklyn.

The following graduates of the Navy's V-12 program have been transferred to the Medical Corps of the Regular Navy in the grade of lieutenant (jg): George F. Sager, Portland, Maine; James T. Thorn, Vina, Ala.; and Theodore H. Wilson Jr., Catonville, Md.

Capt. Frank F. Wildebush (MC), Comdr. J. A. Forte Jr. and Lieut. (jg) B. H. Pender have recently accepted appointments in the regular Navy Medical Corps.

ENCEPHALITIS IN THE CAROLINE ISLANDS

A team from the Naval Medical Research Institute, Bethesda, Md., recently returned from the Caroline Islands, where for two months they investigated an outbreak of encephalitis among the natives of the island of Ponape. About twenty natives were affected by the disease each month during the visit of the research team to the island; no deaths have been reported. Engaged in the investigation were Comdr. Herbert S. Hurlburt (MSC), Union City, Pa., and Lieut. (jg) Charles A. Bailey (MCR), Rutherford, New Jersey.

PERSONALS

Dr. Edward L. Bortz, Philadelphia, President of the American Medical Association, was guest speaker at the Naval Medical Center, Bethesda, Md., February 27. Dr. Bortz' subject was "Medical Preparedness." Officers of the Army and Navy Medical Corps, Public Health Service and Veterans Administration and civilian physicians of the District of Columbia and adjacent counties were invited to attend. After the lecture refreshments were served, with the medical officers of the center acting as hosts.

Rear Admiral Joel T. Boone (MC) has been nominated for duty as general inspector of the Medical Department of the Navy. Admiral Boone, who is now on temporary duty as executive secretary of the Hawley Board, will succeed Rear Admiral Daniel Hunt, who will become inspector of medical activities on the Pacific Coast.

Lieut. Leona Jackson, educational director, Navy Nurse Corps, has returned from a tour of civilian institutions to which Navy nurses are assigned for instruction, including the universities of Colorado and Utah, the University Hospitals of Cleveland and the American Association of Nurse Anesthetists, Chicago.

VETERANS ADMINISTRATION

ADVISORY GROUP ACCEPTS REAPPOINTMENT

Carl R. Gray Jr., Administrator of Veterans Affairs, announces that all members of the Veterans Administration national advisory group on medical problems have accepted reappointment. They held a regular meeting in Washington, D.C., March 22. The group, appointed in compliance with Law 293, Seventy-Ninth Congress, acts in an advisory capacity to the administrator and to Dr. Paul B. Magnuson, chief of medicine and surgery, on policies concerning medical service to veterans. The following are members of the group: Drs. Charles F. McCuskey, Glendale, Calif.; John S. Voyles, St. Louis; Paul Titus, Pittsburgh; Guy W. Brugler, Boston; W.S. Middleton, Madison, Wis.; Francis J. Braceland, Rochester, Minn.; Claude C. Coleman, Richmond, Va.; Francis M. McKeever, Los Angeles; Derrick T. Vail, Chicago; A.R. Shands Jr., Wilmington, Del.; Dean M. Lierle, Iowa City; Roy Kracke, Birmingham, Ala.; A.C. Christie, Washington, D.C.; J. Stewart Rodman, Philadelphia; George F. Cahill, New York; William A. Hunt, Chicago; and Misses Eleanor Cockerill, Pittsburgh, Pa., and Katherine J. Densford, Minneapolis, Minn.

PROSTHETIC APPLIANCES

During the fiscal year ending last June 30, the Veterans Administration supplied disabled veterans with nearly 300,000 prosthetic appliances, including 8,000 artificial legs, 16,000 braces, 9,400 hearing devices, 32,000 pairs of eyeglasses, 17,000 pairs of arch supports and 157,000 stump socks for amputees.

CONTRACTS FOR HOSPITALS

The contract for the construction by the Veterans Administration of a two hundred bed hospital at Grand Island, Neb., has been awarded on a low competitive bid of $5,244,854.

The contract for the foundation and excavation work for the thousand bed veterans' hospital at Newark, N.J., has been awarded to the lowest bidder for $674,900. A few days ago the control for structural steel work on this hospital was awarded for $1,175,000. Bids for the general construction work will be invited in a short time.

Contracts for the main construction work on the 1,000 bed hospital at Buffalo, N.Y., have been awarded, the successful bid being $9,287,000 for the main building; the heating and ventilating contract was for $1,334,497 in addition, and the plumbing contract for $1,297,433.

The contract for the construction of a two hundred and fifty bed Veterans Administration hospital at Big Springs, Texas, has been awarded to the low bidder for $5,712,739.

The contract for the mechanical construction of the four hundred and fifty bed general hospital at Shreveport, La., has been awarded to the lowest bidder for $2,242,450.

Contracts have been let for the general construction, elevators and staff quarters for the two hundred and fifty bed veterans' general hospital at Iron Mountain, Mich., for $6,052,221.

The contract for construction of a three hundred bed hospital at Wilmington, Del. was awarded February 20, with a low bid of $6,911,000, the Army chief of engineers announced. A company was awarded the contract for the elevators for this hospital with a bid of $236,375.

The contract for the construction of the two hundred bed hospital at Beckley was awarded with a low bid of $4,975,123. The low bid for the contract for the elevators and dumb waiters was $161,513.

Contracts have been awarded for the general construction and installation of elevators for the two hundred bed Veterans Administration general hospital to be built at Altoona. The two contracts amount to $5,183,995.

PUBLIC HEALTH SERVICE

MENTAL HEALTH COUNCIL MEETING

The National Advisory Mental Health Council, which makes recommendations to the Surgeon General in the field of mental health, will hold its next meeting in Washington, May 14-15. Prior to this meeting, the three advisory committees to the council will meet: the Community Services Committee on March 8-9; the Training Committee on March 14-16 to consider applications for training grants, and the Research study Section on April 19-20 to consider applications for federal grants for research under the National Mental Health Council act. The chairman of the National Advisory Mental Health Council is Dr. Edward A. Strecker, University of Pennsylvania School of Medicine, Philadelphia; the chairman of the Community Services Committee is Dr. S. Alan Challman, Minneapolis, and the chairman of the Research Study Section is Dr. Nolan D. C. Lewis, director of the New York State Psychiatric Institute and Hospital, New York.

PERSONAL

Dr. John F. Mahoney, medical director, U. S. Public Health Service venereal disease research laboratory, Staten Island, N. Y., served as chairman at the recent meeting in Geneva, Switzerland, of the Expert Venereal Disease Committee of the World Health Organization Interim Commission. Dr. Mahoney is said to have been the first to demonstrate the effectiveness of penicillin against syphilis, for which contribution he received a Lasker Award through the American Public Health Association in 1946.

EFFECT OF WAR ON CHILDREN

A $20,000 research grant has been awarded to the International Committee on Mental Hygiene under the National Mental Health Act, Oscar R. Ewing, federal security administrator, has announced. The grant will be used to make a study of the effect of war on children. This study will be made under the direction of Dr. David Levy, professor of psychiatry, Columbia University, New York, and will be presented at the International Congress on Mental Health to be held in London, England, in August. The grant was recommended by the National Advisory Mental Health Council and was approved by the Surgeon General, U. S. Public Health Service.

EXAMINATION FOR PHARMACIST

The U. S. Public Health Service announces a written examination to be held June 21-23, 1948 for applicants for appointment in the regular corps in grades of junior assistant pharmacist, assistant pharmacist and senior assistant pharmacist.

Applicants must be citizens of the United States and graduates of a recognized school of pharmacy; applicants for the two higher grades must also have three and four years, respectively, of graduate professional training or experience.

The entrance pay for junior assistant with dependents is $3,391 a year, and for senior assistant pharmacist with dependents, $4,351.

Additional information may be obtained from the Surgeon General, U. S. Public Health Service, Washington 25, D. C., Attention: Division of Commissioned Officers.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

COLORADO

Postgraduate Courses.—The University of Colorado is offering course in nuclear energy in cooperation with the Denver County Medical Society, April 26-29. The course is limited to physicians. Among lecturers who will participate are Dr. Stafford Warren, dean, Medical School, University of California, Los Angeles; Col. Elbert DeCoursey, Brooke General Hospital, Ft. Sam Houston, Texas, and Capt. Lloyd R. Newhouser of the U. S. Navy. Inquiries should be made to the Office of Graduate Medical Education, University of Colorado School of Medicine, Denver. The registration fee is $8; there is no tuition.

The Colorado State Medical Society and the University of Colorado School of Medicine are collaborating in a course in medical public relations to be given in nine lectures during April and May for graduate and undergraduate medical students.

A course for physicians on supervision of the well child will be held at Colorado Medical Center, April 26-28. Dr. Lee Forrest Hill, past president, American Academy of Pediatrics, will be the guest lecturer. The course is sponsored by the University of Colorado Medical Center, the Rocky Mountain Pediatric Society and the State Department of Public Health.

Rocky Mountain Radio Series.—A thirteen week dramatization of medical subjects of particular interest to the Rocky Mountain region, sponsored by the Colorado State Medical Society and titled "Man and Medicine", will be offered to Colorado radio stations early in May. The first program of this local series, called "Beware of the Tick," is being offered stations in Alamosa, Boulder, Canon City, Colorado Springs, Denver, Durango, Fort Collins, Grand Junction, Greeley, La Junta, Lamar, Montrose, Pueblo and Trinidad.

CONNECTICUT

Annual Meeting of State Medical Society.—The Connecticut State Medical Society will hold its annual meeting at the Roger Ludlowe High School, Fairfield, April 28-29 under the presidency of Dr. James R. Miller. Papers will be presented by guest speakers each morning and symposiums and section meetings will be held each afternoon. The speakers include:

W. Edward Chamberlain, Philadelphia, Harmful Effects of Irradiation.
George C. Andrews, New York, What the General Practitioner Should Know about Dermatology.
E. Jefferson Browder, New York, Diagnosis and Treatment of Cranial Injuries.
Edward B. Tuohy, Washington, D. C., Integration of Anesthesiology in Medicine.
Emil Novak, Baltimore; Jacob Hoffman, Philadelphia, and J. Ernest Ayre, Montreal, Canada, Symposium on Gynecology.
Joseph Stokes Jr., Philadelphia, Infectious Hepatitis.
Charles R. Drew, Washington, D. C., Dehydration and Electrolytes.

There will be a symposium on alcoholism Thursday afternoon. The annual meeting of the Woman's Auxiliary will be on April 28 at the Brooklawn Country Club, Bridgeport, beginning at 1 p.m.

FLORIDA

State Association Meeting.—The annual meeting of the Florida Medical Association was held at the Ponce de Leon Hotel, St. Augustine, April 11-14 under the presidency of Dr. William C. Thomas, Gainesville. Among papers presented at three scientific sessions was "The Treatment of Anemia" by Dr. Russell L. Hader Cleveland, guest speaker. Twelve specialty societies met during the weekend preceding the association meeting. The Woman's Auxiliary also met April 12-13.

GEORGIA

State Medical Society Annual Meeting.—The annual session of the Medical Association of Georgia will be held in Atlanta April 27-30 under the presidency of Dr. Steve P. Kenyon, Dawson. The scientific program, beginning April 28, includes:

Henry K. Beecher, Boston, The Abner Wellborn Calhoun Lecture, Relief of Suffering Within the Hospital.
George H. Herrmann, Galveston, Texas, Coronary Artery Heart Disease.
Robert B. Lawson, Winston-Salem, N.C., Recent Concepts Regarding the Spread and Treatment of Poliomyelitis.
Thomas P. Findley Jr., New Orleans, New Concept Concerning the Pathogenesis of Certain Disorders Associated with Aging.

The President's Address on current problems of organized medicine will be given Thursday. Scientific and technical exhibits will be set up in the Academy of Medicine Building. The Auxiliary to the Association will meet in conjunction with the Academy of Medicine.

IOWA

Dr. Soley Appointed Dean.—Dr. Mayo Soley, professor of medicine and assistant dean at the University of California Medical School, San Francisco, has been appointed dean of the University of Iowa College of Medicine, Iowa City, effective July 1.

Dr. Soley will succeed Dean Ewen M. MacEwen, who died September 3, 1947. Dr. Soley will also serve as director of medical services of the University Hospitals and as a research professor in the Department of Internal Medicine. He is a graduate of Harvard Medical School, Boston, 1933, and has been associated with the University of California since 1935.

MARYLAND

Audiometric Testing Resumed.—The Baltimore League for the Hard of Hearing, Inc., has resumed its services for audiometric testing and the fitting of hearing aids, which will be done by appointment only. The League also conducts classes in lip reading and voice improvement for the hard of hearing. Moderate fees are charged those able to pay.

State Society Annual Meeting.—The Medical and Chirurgical Faculty of the State of Maryland will hold its annual meeting April 16-29 at the Sheraton Belvedere Hotel, Baltimore, under the presidency of Charles W. Maxson, Baltimore. Out of state speakers include:

Lee E. Sutton Jr., Richmond, Va., Early Diagnosis and General Pediatric Care of Poliomyelitis.
Col. Raymond O. Dart, Washington, D. C., Role of the Army Institute of Pathology in American Medicine.
John H. Gibbon Jr., Philadelphia, Diagnosis and Surgical Treatment of the Carcinoma of the Lung.
Winthrop M. Phelps, Children's Rehabilitation Institute, Cerebral Palsy Problem..
George F. Cahill, New York, Tumors of the Adrenal.
William S. Tillett, New York, Present Status of Pneumonia and its Clinical Problems.

MICHIGAN

Rural Medical Student Loan Fund.—A revolving loan fund to be known as the "Fund for the Encouragement of Medical Practice in Rural Areas" has been created by the Michigan Foundation for Medical and Health Education. A hundred man State Campaign Committee was recently formed with a goal of "$50,000 in Five Months," for the rural practice project. Announcement was made at a foundation breakfast March 11 at Detroit.

Children's Clinic Meeting.—The Detroit Pediatric Society and the Children's Hospital of Michigan Annual Clinic will hold a meeting in Detroit May 12-13. The program begins with a clinical conference at 5 p.m. at the Herman Kiefer Hospital. Following dinner at the Fort Shelby Hotel, Dr. Mitchell I. Rubin, Buffalo, will speak on "Kidney Infections in the Infant." On May 13 the following program will be presented at the Rackham Memorial Building.

William A. Evans Jr., Detroit, Obstruction of Alimentary Tract in Infancy.
Wolfgang W. Zuelzer, Detroit, Management of Purpura.
Warren E. Wheeler, Columbus, Ohio, Avoidance of Tracheotomy in Respirator Patients.
Paul V. Woolley Jr., Detroit, Management of Diarrhea.
James L. Wilson, Ann Arbor, Anaerobic Metabolism in Premature and Newborn Infants.

NEBRASKA

Annual State Medical Meeting.—The Nebraska State Medical Association will hold its eightieth annual assembly May 3-6 at the Cornhusker Hotel, Lincoln, under the presidency of Dr. George E. Charlton, Norfolk. Guest speakers from the University of Illinois College of Medicine, Chicago, will participate in a panel discussion on gallbladder disease following their presentation of papers Tuesday morning. They are:

Roger A. Harvey, Roentgenologic Diagnosis of Gastric Lesions.
Edmund F. Foley, Medical Aspects of Gastric Lesions.
John T. Reynolds, Surgical Treatment of Gastric Lesions.

On Wednesday members of the faculty of Duke University School of Medicine, Durham, N.C., will speak:

Edwin S. Orgain, Treatment of Cardiovascular Disease.
Guy L. Odom, Neurosurgery in Intractable Pain.
Elbert L. Persons, Medical Aspects of the Problem of Joint Disease.
Lenox D. Baker, Marie-Strümpel Arthritis and Undiagnosed Low Back Pain.

Panel discussions for the afternoon will be on lesions of the colon by members of the faculty of the University of Illinois and another on upper extremity pain by members of the faculty of Duke University. On Thursday morning papers will be presented by the following speakers from the University of Wisconsin Medical School, Madison:

Ralph E. Campbell, Management and Treatment of Prolonged Labor.
John E. Gonce, Meningitis in Infancy and Childhood.
Sture A.M. Johnson, Diagnosis and Treatment of Common Skin Diseases.
Edgar S. Gordon, Management of Thyroid Disease with Radioactive Iodine.

They will also participate in a panel discussion on diabetes. Other guest speakers will be Dr. Edward L. Compere, Chicago, "Poliomyelitis"; Dr. Paul Hawley, Chicago, "Prepayment Plans for Health Care;" and Charles S. Cameron, New York, "Cancer." The annual banquet will be Wednesday evening.

NEW YORK

Dr. Van DeMark Retires.—Dr. John L. Van DeMark, Rochester, director of Rochester State Hospital, retired from the New York State Department of Mental Hygiene January 16 and will be replaced by Dr. Kenneth K. Slaght, who entered the state hospital service in 1927 at Rochester. On his retirement Dr. Van DeMark was feted by his associates, employees of the hospital and friends.

"20,000 Years of Service."—The Medical Society of the State of New York has issued under the title "20,000 Years of Service" a commemorative booklet in honor of physicians who have served their communities fifty years or more. It is a beautiful booklet with a record of the ceremony in which Drs. Nathan B. Van Etten and Louis H. Bauer participated, and it includes also photographs and brief biographies of physicians who have practiced in New York more than fifty years.

Medical Care Plans Membership Grows.—The six New York State nonprofit voluntary medical care insurance plans approved by the Medical Society of the State of New York increased their membership 425,573, or 71 per cent, during 1947. Dr. Carlton E. Wertz, Buffalo, chairman of the Committee on Economics of the medical society, reported March 14 that over-all enrolment is 1,023,615. Benefits incurred for medical services to members in 1947 amounted to $3,681,555, representing over 110,000 claims.

New York City

Home Care of Cancer to Continue.—An experimental program beginning a year ago (THE JOURNAL, Feb. 1, 1947, p. 335) for treating patients with advanced cancer at home has been so successful that the New York City Cancer Committee has decided to allot $50,000 to the project. The program has been carried on by Montefiore Hospital. In the first year 1,540 medical calls were made. Social service workers and other specialists from the hospital staff and members of the Visiting Nurse Service of New York called on patients regularly.

Measles Epidemic.--According to newspaper reports, the incidence of measles is still rising in the city with 1,464 new cases reported for the week March 21-27. Since January 1 the health department has distributed free to physicians 21,423 doses of gamma globulin, which is more than three times the amount distributed in a corresponding time in 1946. So far this year, 9,215 cases and 7 deaths have been reported.

The Cleveland Cancer Award.—Dr. Cornelius P. Rhoads, director, Memorial Hospital for the treatment of Cancer and Allied Diseases, received the Clement Cleveland Award of the New York City Cancer Committee April 4 for work in cancer control during 1947. The award was made at a dinner that opened the 1948 fund drive for the American Cancer Society, Inc. The hospital is one of the principal beneficiaries of the local committee.

Open Institute for Cancer Research.—The Sloan-Kettering Institute for Cancer Research at Memorial Hospital Center for Cancer and Allied Diseases will open April 16. Sir Henry H. Dale, F.R.S., will speak at 9:30 a.m. Representatives of universities, technology and government and layman will make up the panel to discuss medical research. At a dinner in the Waldorf-Astoria, 7:30 p.m., the speakers will be Sir Henry H. Dale, Charles F. Kettering, Sc. D., Dayton, Ohio, and Dr. C. P. Rhoads, New York. The cornerstone of the institute, the central unit of the $15,000,000 Memorial Cancer Center, was laid April 7, 1947 (THE JOURNAL, May 3, 1947, p. 90).

Report on Tuberculosis.—Dr. Harry S. Mustard reported March 9 that the city's 18,000 cases of tuberculosis included 7,700 new cases, of which 17 per cent were in the minimal stage and 48 per cent in the advanced stage. In an address at the joint conference of the New York Tuberculosis and Health Association and the Tuberculosis Sanitorium Conference of Greater New York, he said that $309,000 was needed for purchase of new equipment and facilities for detection of tuberculosis. There was reduction of 5 per cent in the death rate from tuberculosis in New York in 1947. Health department figures show that for the first time deaths from tuberculosis fell below 40 per hundred thousand population. The death rate in the boroughs ranged from 27.8 in Queens to 73.1 in Manhattan. The rate for the city was 39.6.

NORTH CAROLINA

Annual Meeting of State Society.—The annual meeting of the Medical Society of the State of North Carolina will be held May 3-5 at the Carolina Hotel, Pinehurst, under the presidency of Dr. James F. Robertson, Wilmington. Guest speakers at the general sessions include:

R. E. Lapp, Ph.D., Washington, D. C., Atomic Warfare and Medicine.
John deJ. Pemberton, Rochester, Minn., subject to be announced.
Russel L. Haden, Cleveland, Treatment of Anemia.
William F. Friedewald, Atlanta, Ga., Pathogenesis, Diagnosis and Treatment of the Acute Phase of Poliomyelitis.

Section meetings will be on surgery, practice of medicine, gynecology and obstetrics, public health and education, neurology and psychiatry, pediatrics, radiology, practice of medicine and surgery, and ophthalmology and otolaryngology. President's Night on Tuesday includes a banquet at 7 o'clock to be followed by the President's Ball. Various societies and alumni associations will hold luncheons.

OHIO

Scientific and Technical Periodicals.—A list of scientific and technical periodicals in the libraries of greater Cincinnati will be published in May. It will show the holdings of fifty-eight public and industrial libraries and will contain 3,200 titles and more than 10,000 separate entries. This guide to the periodical resources of this area, particularly in chemistry, medicine and engineering, is being brought out under the sponsorship of the Cincinnati Section of the American Chemical Society for $2.50 postpaid.

Dr. Starin to Retire.—William A. Starin, Ph.D., of the Ohio State University department of bacteriology will retire from active service at the end of this academic year after thirty-eight years of teaching at the university. Plans are being made by friends and former students for a dinner in Dr. Starin's honor on May 8 at the Neil House in Columbus, and all friends and former students are invited to attend. Reservations must be made by May 1. The William A. Starin Lectureship has been established through the Ohio State University Development Fund and will be administered by the department of bacteriology in consultation with the dean of the graduate school. Contributions for the fund should be made payable to the Ohio State University Development Fund and sent to Dr. Margaret D. Heise, department of bacteriology, Pharmacy and Bacteriology Building, Ohio State University, Columbus. Reservations should also be made with Dr. Heise.

TEXAS

Dr. Williams Named Secretary.—Dr. Harold M. Williams, Fort Worth, former assistant secretary-editor of the State Medical Association of Texas, on January 17 was named secretary by the board of trustees. The office of secretary-editor became vacant on the recent death of Dr. Holman Taylor.

Dedication at College of Medicine.—Baylor University College of Medicine will hold a scientific program at the opening of the Roy and Lillie Cullen Building April 22-24 in Houston. Among the speakers on April 22 will be Dr. Chauncy D. Leake, president, University of Texas Medical Branch, Galveston; Dr. Ernst W. Bertner; Dr. Alton Ochsner, Tulane University of Louisiana School of Medicine, New Orleans; Col. A.A. De Coursey, San Antonio; Dr. Albert H. Holland, medical advisor to the Oak Ridge (Tenn.) Project of the U. S. Atomic Energy Commission, and William Houston, Ph.D., president of Rice Institute, Houston. Dr. Morris Fishbein, Editor of THE JOURNAL, will speak at 8 p.m. on April 23. Friday's program will include the following speakers: Dr. Benjamin B. Wells, Houston, director of education and research of the M.D. Anderson Hospital for Cancer Research; Dr. Francis J. Braceland, Mayo Clinic, Rochester, Minn., and Dr. Edwin C. Hamblen, Duke University School of Medicine, Durham, N. C. Three of the speakers on Friday afternoon will be Dr. Rolla E. Dyer, director of the National Institute of Health and special lecturer of the George Washington University School of Medicine, Washington, D.C., who will discuss "Research in Medical Sciences;" Dr. Henry M. Winans, clinical professor of medicine, Southwestern Medical College, Dallas, "Epileptic Equivalents as Cause for Somatic Symptoms" and Dr. Benjamin M. Baker Jr., internist at Johns Hopkins University School of Medicine, Baltimore, who will close the scientific session Friday afternoon. The principal speaker at the formal dedication will be Kenneth C. Royall, Secretary of War, who will speak on "Medical Education and National Defense."

State Medical Association Meeting.—The annual meeting of the State Medical Association of Texas will be held in Houston April 26-29 with headquarters at the Rice Hotel. Innovations in the program are an active section on general practice and an evening meeting designed especially for the lay public. At the lay meeting the speakers will be:

Lowell S. Goin, Los Angeles, Medicine Men and Doctors.
Haven Emerson, New York, It's Health Roundup Time in Texas; presentation of Dallas Health Museum Award.

Out of state speakers at the general sessions include:

Leo G. Rigler, Minneapolis, Routine Roentgen Examination of Symptomless Persons.
Waltman Walters, Rochester, Minn., Cancer of the Stomach.
Andrew B. Rivers, Rochester, Minn., Perforating Peptic Ulcers.
George F. Lull, Chicago, Secretary and General Manager, American Medical Association, Medical Legislation.
Willard O. Thompson, Chicago, Enodcrine Problems During Adolescence.
Ralph Luikart, Omaha, Reducing Fetal and Maternal Morbidity and Mortality by Controlled Nutrition During Pregnancy.
Frank H. Lahey, Boston, Management of Lesions of the Thyroid.
William L. Benedict, Rochester, Minn., Prevention of Blindness.
Jean V. Cooke, St. Louis, Leukemia in Children.
John A. Kolmer, Philadelphia, Synergistic or Additive Activity of Chemotherapeutic Compounds.
Wingate M. Johnson, Winston-Salem, N.C., Pancreatitis.

Sectional programs will also be presented. The usual clinical luncheons, president's reception and ball, alumni and fraternity banquets, past-presidents' association luncheon and golf tournament have been arranged. Scientific motion picture and technical exhibits are provided as between meeting features. The Woman's Auxiliary will meet in conjunction with the association April 26-29 with headquarters at the Lamar Hotel. Seven other related organizations will hold annual meetings.

GENERAL

Gastroscopic Society Meeting.—The American Gastroscopic Society will hold its fourth annual meeting at the Hotel Claridge, Atlantic City, N.J., May 2 under the presidency of Dr. Herman J. Moersch, Rochester, Minn. Subjects of papers to be presented include gastric polyps, involvement of the stomach in malignant lymphoma and flexible tube esophagoscopy.

Phase Microscopy and its Photographic Application. The Chicago Chapter of the Biological Photographic Association will meet April 20 at 7:30 p.m. at the University of Illinois Hospitals, 1853 West Polk Street, Room 221. Dr. Oscar W. Richards, Ph. D., Buffalo research biologist, will lecture on phase microscopy and its photographic application, illustrated with motion pictures.

Fellowship Examinations.—The Board of Examiners of the American College of Chest Physicians announces that the next oral and written examinations for fellowship will be held at Chicago June 17, 1948. Candidates who would like to take the examinations for fellowship in the college should contact the Executive Secretary, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10.

Society for Psychosomatic Research.—The American Society for Research in Psychosomatic Problems will meet May 1-2 at Chalfonte-Haddon Hall, Atlantic City, N.J., under the presidency of Dr. Franz G. Alexander, Chicago. Halfday discussions will be devoted to psychosomatic aspects of genitourinary and gynecologic problems, psychosomatic problems of methodology in psychosomatic research and psychosomatic problems in diabetes.

Medical Relations in Business and Industry.—Wayne University School of Occupational Health will present its fifth series of Conferences on Medical Relations in Business and Industry on Wednesdays beginning April 28 and ending June 19. Conferences will open at 4:30 p.m., recess for dinner and reconvene at 7:15 p.m. Application for enrolment together with a check for $50 for the eight symposium-conferences should be mailed to the Dean of Wayne University School of Occupational Health, 1547 Penobscot Building, Detroit 26. The single conference fee is $10.

International Conference On Rheumatism. An International Scientific Conference on chronic degenerative rheumatism will be held June 24-27 at Aix-les-Bains, France, under the presidency of Professor Leriche. The conference will include titular members, who must be doctors of medicine or medical students, although the bureau reserves the right to accept all persons actively interested in hydrology and rheumatology; geologists, directors of spas, manufacturers of pharmaceutic products and others who furnish references. Communications should, if possible, be concerned with chronic degenerative rheumatism. Others are accepted at the discretion of the bureau. All correspondence should be addressed to Dr. Francon, 55 rue des Mathurins, Paris (8), who will accept advance registrations.

Medical History Meeting.—The twenty-first annual meeting of the American Association of the History of medicine will be held in Philadelphia May 26-27. All sessions (with the exception of the dinner) will take place at the College of Physicians. On Wednesday morning's program is a symposium on "Physician in the 18th Century." The Garrison Lecture will be delivered at 3 o'clock in the afternoon, and at 8 p.m. papers on the place of history in medical education will be submitted and discussed. In Thursday afternoon's general session, papers on miscellaneous subjects volunteered by members will be given. The dinner will be at 7 o'clock. Reservations should be made directly with Mr. Michael T. McGarry, Penn-Sheraton Hotel, referring in the letter to the meeting of the association.

Annual Dermatologic Meeting.—The annual meeting of the American Dermatological Association, Inc., will be held at the Hotel Del Coronado on Coronado Beach adjacent to San Diego April 26-29 under the presidency of Dr. J. Gardner Hopkins, New York. At an informal discussion scheduled for Monday at 2 p.m. new therapeutic ideas and diagnostic methods and other new suggestions will be presented and discussed. Among the subjects of papers to be read are:fleas in california, granular cell myoblastoma, eosinophylic granulomas of the skin, disseminate lupus erythematosus and seabathers' eruption. The Tuesday evening speaker will be Dr. Stafford Warren, dean and professor of biophysics, Medical School, University of California in Los Angeles, who will present "A Discussion of the Effects of Atomic Radiation on Human Tissues and Comments on Atomic Research." A recreational program has been arranged for late afternoon of each day.

National Heart Committee Formed. — The National Heart Committee, with headquarters in New York City, was recently formed to support pending legislation before Congress for the establishment of a National Heart Institute under the U. S. Public Health Service. Theodore R. Gamble, Washington, D.C., former assistant to the Secretary of the Treasury in charge of bond sales, is chairman. Among the sponsors of the National Heart Com-are Drs. Charles A. R. Connor, New York, president; Arlie R. Barnes, Rochester, Minn.; T. Duckett Jones, Boston; Irving S. Wright, New York; David D. Rutstein, Albany, N.Y.; Paul D. White, Boston; Howard Rusk, New York; Harry Goldblatt, Cleveland, and Henry S. Simms, Ph.D., New York. According to the committee, less than $3,000,000 a year of public and private funds is being spent on research in diseases of the heart and circulation, while $3,000,000 a year of public funds is currently being spent on research and control of plant and animal diseases.

CANADA

Public Health Association Conference.—The Canadian Public Health Association will hold its thirty-sixth annual meeting in Vancouver, British Columbia, May 18-20. The meeting is being sponsored by the British Columbia Department of Health with the Washington State Public Health Association as co-host. Canadian and American public health workers and all medical and nursing personnel are invited to attend. Sectional meetings will deal with epidemiology, sanitation, industrial hygiene, public health nursing, public health education, public health administration, nutrition and venereal disease. Annual meetings of the Washington State Public Health Association, British Columbia Public Health Workers and the Canadian Institute of Sanitary Inspectors will be held the day preceding the conference.

Deaths

George Barclay Wallace ⊕ New York; born in Detroit in 1874; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897; studied at the University of Vienna and the University of Strasbourg; for three years instructor in pharmacology at the University of Michigan; joined the faculty of New York University College of Medicine in 1902 as an instructor; four years later became professor and in 1942 chairman of the department of pharmacology, retiring on Aug.31,1946; for many years professor of pharmacology at the New York University College of Dentistry; member of the American Society of Clinical Investigation, and of many other scientific societies; past president of the American Society of Pharmacology and Experimental Therapeutics, the Harvey Society and the Society of Experimental Biology and Medicine; served during World War I; veteran of the Spanish-American War; chairman of the committee on pharmacology and drugs of the 1939 World's Fair; member of the Committee on Drug Addiction of the Bureau of Social Hygiene; served as attending physician at the Almshouse Hospital and the Workhouse Hospital; later assistant physician at Bellevue Hospital and on the consulting staffs of the Central Neurological and Harlem hospitals; in 1934 received the honorary master of arts degree from the University of Michigan and in 1941 the doctor of science degree from New York University; in 1925 elected president of the Medical Alumni Association of New York University; on the thirty-sixth anniversary of his active teaching service in New York University College of Medicine, friends, alumni and students presented a portrait of him to the college; served as managing editor of the *Journal of Pharmacology and Experimental Therapeutics;* died in Bellevue Hospital January 15, aged 73, of cerebral hemorrhage and arteriosclerosis.

Albert Horr Montgomery ⊕ Chicago; born in Chicago Sept. 8, 1882; Rush Medical College, Chicago, 1907; professor of surgery at the University of Illinois College of Medicine; formerly on the faculty of his alma mater; member of the founders group of the American Board of Surgery; member of the Institute of Medicine of Chicago, Chicago Surgical Society, American Surgical Association and the American Association for the Study of Trauma; served as president and secretary of the Western Surgical Association; an officer serving overseas during World War I; retired in 1946 as chief of the surgical department of Children's Memorial Hospital; served on the staffs of Cook County and Presbyterian hospitals; died January 31, aged 65, of coronary artery disease.

Charles D. Allison, Gardner, Ill.; Medical College of Indiana, Indianapolis, 1896; died January 21, aged 76, of cerebral hemorrhage.

George Atcheson, Denver; Denver College of Medicine, 1893; member of the American Medical Association; affiliated with St. Luke's Hospital; died January 7, aged 80, of heart disease.

Florence Widney Austin ⊕ Dallas, Texas; Southwestern University Medical College, Dallas, 1908; died January 8, aged 60, of cerebral thrombosis.

Karl Roland Bailet, Boston; College of Physicians and Surgeons, Boston, 1910; Tufts College Medical School, Boston, 1913; served during World Wars I and II; deputy health commissioner of Boston; died in the New England Baptist Hospital Dec. 21, 1947, aged 61, of carcinoma of the liver.

Crescent Frank Balmenti, Youngstown, Ohio; University of Virginia Department of Medicine, Charlottesville, 1947; *interned* at the University Hospitals in Cleveland; died recently, aged 25.

Charles W. Banks, Orangeville, Ohio; Cleveland Homeopathic Medical College, 1899; died Dec. 8, 1947, aged 75, of heart disease.

Herbert Octavius Black, Waco, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1913; affiliated with the Veterans Administration; died in Hillcrest Hospital Dec. 19, 1947, aged 59, of heart disease.

Grace Mott Boswell, Cincinnati; Miami Medical College, Cincinnati. 1909; served on the staff of the Christ Hospital; died recently, aged 77, of arteriosclerosis.

Charles Lesley Boyers ⊕ Parkersburg, W. Va.; Maryland Medical College, Baltimore, 1900; affiliated with the Camden-Clark Memorial Hospital and St. Joseph's Hospital, where he died January 2, aged 70, of coronary occlusion.

Ronney Hunter Bridges, Shreveport, La.; Louisiana State University School of Medicine, New Orleans, 1944; interned at the Milwaukee County Hospital in Durham, N. C.; served in the medical corps of the U. S. Naval Reserve during World War II; died July 25, 1947, aged 26.

Robert Brittain ⊕ Downsville, N.Y.; Albany (N.Y.) Medical College, 1890; past president of the Delaware County Medical Society; village health officer; served during World War I, affiliated with the Margaretville (N.Y.) Hospital; died January 3, aged 80, of cerebral embolism.

William Cullen Bryant, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1894; specialist certified by the American Board of Urology, Inc.; member of the American Urological Association; served as a member of the state board of medical education and licensure; died Dec. 23, 1947, aged 76.

Luther Francis Bugg, Carnegie, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1902; died recently, aged 72.

J. S. Butler, Superior, Neb.; Western Reserve University Medical Department, Cleveland, 1883; died Dec. 11, 1947, aged 90.

William Francis Carmody, Worcester, Mass.; Harvard Medical School, Boston, 1909; died recently, aged 78, of arteriosclerotic heart disease.

Knowles K. Carr ⊕ Devers, Texas; Kansas City College of Medicine and Surgery, Kansas City, Mo., 1917; served during World War I; died in Dayton (Texas) Memorial Hospital Dec. 24, 1947, aged 67, of cardiac failure.

Everette Virgil Conley, Cleveland; University of Louisville (Ky.) Medical Department, 1916; found dead in a water-filled ditch near Louisa, Ky., January 3, aged 55.

Thomas Egner Cooper ⊕ Davis, Calif.; St. Louis University School of Medicine, 1914; died Dec. 26, 1947, age 57, of coronary disease.

Joseph Thomas Croteau, Chisholm, Maine; University of Montreal Faculty of Medicine, Montreal, Canada, 1907; member of the American Medical Association; died in a hospital at Lewiston Dec. 14, 1947, aged 67.

Michael Francis Dean, Indianapolis; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1907; member of the American Medical Association; died recently, aged 66, of coronary occlusion and diabetes mellitus.

Chertsey Hopkins DeJarnette, Staunton, Va.; Woman's Medical College of Pennsylvania, Philadelphia, 1894; served on the staff of the Western State Hospital; died Dec. 7, 1947, aged 79, of angina pectoris.

James E. Drane ⊕ Phoenix, Ariz.; University Medical College of Kansas City, Mo., 1896; affiliated with St. Monica's Hospital and Health Center, Good Samaritan Hospital and St. Joseph's Hospital, where he died Dec. 24, 1947, aged 75, of cerebral hemorrhage.

Urban Jacob Durner, Milwaukee; Marquette University School of Medicine, Milwaukee; 1913; member of the American Medical Association; served during World War I; affiliated with St. Joseph's Hospital, where he died Dec. 3, 1947, aged 57, of coronary occlusion.

Clifford S. Goodman ⊕ Chicago; University of Louisville (Ky.) Medical Department, 1912; served during World Wars I and II; died January 12, aged 56, of suffocation and burns received in a fire in his apartment.

Hugo Anton Engelhardt ⊕ Houston, Texas; Bellevue Hospital Medical College, New York, 1897: during World War II active in selective service work; on the courtesy staffs of St. Joseph's Infirmary, Methodist and Memorial hospitals; died recently, aged 73, of peritonitis.

John Nelson English, Gillespie, Ill.; Missouri Medical College, St. Louis, 1893; member of the American Medical Association; chairman of the board of directors of the Peoples State Bank; died in St. Francis Hospital, Litchfield, January 4, aged 81, of pneumonia.

Warren Dexter Fales, Silver Spring, Md.; Columbian University Medical Department, Washington, D.C., 1895; died in the Washington Sanitarium and Hospital in Takoma Park, January 18, aged 79, of arteriosclerosis.

Herman Albert Fasbender, Hastings, Minn.; University of Minnesota Medical School, Minneapolis, 1920; served as mayor; died in the Northwestern Hospital, Minneapolis, January 7, aged 53.

Ernest James Franklin ⊕ Indianapolis; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, 1920; died Dec. 11, 1947, aged 54.

Herbert William Fudge ⊕ Elmira, N.Y.; Niagara University Medical Department, Buffalo, 1893; fellow of the American College of Surgeons; served on the staff of the Arnot-Ogden Memorial and St. Joseph's hospitals; died January 9, aged 78.

Ray Thomas Fuller ⊕ Kalamazoo, Mich.; Saginaw (Mich.) Valley Medical College, 1903; affiliated with the Borgess and Bronson Methodist hospitals; died January 7, aged 72, of chronic nephritis.

Daniel Ignatius Gallagher ⊕ Lakewood, Ohio; St. Louis University School of Medicine, 1924; affiliated with the Lakewood (Ohio) Hospital and St. John's Hospital in Cleveland; died January 8, aged 49, of coronary thrombosis.

Harriet M. Allen Heath, South Pasadena, Calif.; Chicago Homeopathic Medical College, 1884; died Dec. 2, 1947, aged 89.

William Daniel Heaton, New York; Rush Medical College, Chicago, 1913; served in the U. S. Public Health Service during and after World War I; medical director of the New York Life Insurance Company; died January 14, aged 58, of heart disease.

Thomas Clark Hill ⊕ Huntington, Utah; University of Colorado School of Medicine, Denver, 1908; an officer during World War I; served as city physician and health officer; died Dec. 30, 1947, aged 63, of heart disease.

Thomas Jefferson Iles, New York; Vanderbilt University School of Medicine, Nashville, Tenn.; 1898, died in St. Barnabas Hospital recently, aged 79.

Ludwig Koempel, Brooklyn; Long Island College Hospital, Brooklyn, 1899; member of the American Medical Association; affiliated with the Bethany Deaconess Hospital; died Dec. 31, 1947, aged 81, of coronary thrombosis.

Joseph Roscoe Latham, New Bern, N.C.; Jefferson Medical College of Philadelphia, 1917; served during War I; formerly affiliated with the U. S. Public Health Service; at one time county coroner and health officer; medical director of St. Luke's hospital, where he died Dec. 29, 1947, aged 52.

John Kroulik, Nelsonville, Texas; University of Texas School of Medicine, Galveston, 1897; during World War I head of the county medical examining board for Selective Service; for many years a school trustee; president and director of the Industry State Bank; died in a hospital in Bellville Nov. 7, 1947, aged 75, of cerebral hemorrhage.

Thomas Adam Lawson, Dallastown, Pa.; Jefferson Medical College of Philadelphia, 1906; member of the American Medical Association; past president of the York County Medical Society; for many years director of the public schools in Dallastown; died Dec. 3, 1947, aged 68, of heart disease.

Lewis H. Long, Maysville, Ky.; Hospital College of Medicine, Louisville, 1894; member of the American Medical Association; president of the Mason County Medical Society; died January 9, aged 75.

Sergeant Price Martin, Kenmore, N.Y.; University of Pennsylvania School of Medicine, Philadelphia, 1921; member of the American Medical Association; at one time fellow in surgery at the Mayo Clinic in Rochester, Minn.; died January 8, aged 61.

Kirk Patrick Mason ⊕ Major, U. S. Army, retired; St. Petersburg, Fla.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1907; served during World War I; entered the medical corps of the regular army in 1920 as a captain; retired Sept. 30, 1934 for disability in line of duty; died July 28, 1947, aged 68, of cerebral hemorrhage.

John Bernhard Meneke ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1904; affiliated with the Lankenau Hospital; died January 18, aged 64, of cerebral thrombosis.

Marshall William Meyer ⊕ Madison, Wis.; Rush Medical College, Chicago, 1927; health commissioner of Madison since Nov 1, 1947; formerly district health officer with the state board of health, serving at Ashland and at Green Bay as venereal disease control officer for the state board of health; fellow of the American Public Health Association; received his M.P.H. degree from the University of Michigan in Ann Arbor; died January 22, aged 46, of heart disease.

Robert Otto Meyer, Minneapolis; Kaiser-Wilhelms-Universität Medizinische Fakultät, Strassburg, Germany, 1888; served as clinical associate professor in the department of obstetrics and gynecology at the University of Minnesota Medical School; died Dec. 12, 1947, aged 83.

Virgil Orin Muench ⊕ Nichols, Iowa; State University of Iowa College of Medicine, Iowa City, 1910; served during World War I; affiliated with Mercy Hospital in Iowa City, serving as chairman of the staff; vice president of the local bank; died January 3, aged 62, of heart disease.

Willis Grafton Neally, Montclair, N.J.; Dartmouth Medical School, Hanover, N.H., 1907; an organizer and first president of the Greater New York Hospital Association; member of the American Hospital Association, medical director of the Brooklyn Hospital from 1912 to 1946, when he became medical director emeritus; died in the Mountainside Hospital January 7, aged 65, of coronary occlusion.

Francis Power Parker, ⊕ Charlottesville, Va.; Emory University School of Medicine, Atlanta, 1931; served during World War II; member of the Medical Association of Georgia; on the faculty of the University of Virginia Department of Medicine; formerly on the faculty of his alma mater; died recently, aged 41, of heart disease

Frank Benjamin Parker, Roanoke, Va.; Hahnemann Medical College and Hospital of Philadelphia, 1904; died in the Lewis-Gale Hospital Dec. 14, 1947, aged 65, of carcinoma of the rectum

Horace Norton Parker ⊕ Trenton, N.J., University of Pennsylvania Department of Medicine, Philadelphia, 1907; urologist for the city bureau of health, died January 4, aged 64, of coronary occlusion

John Wilson Parker, Columbus, Ohio; Chicago Homeopathic Medical College, 1899; formerly health officer of London ;died Dec. 28, 1947, aged 71.

Harold Darby Parks ⊕ Lieutenant Colonel, M.C., U. S. Army, Lancaster, Texas; Jefferson Medical College of Philadelphia, 1931; interned at the Army Station Hospital, Fort Sam Houston; served during World War II; killed in an airplane crash in the jungles of Peru October 10, 1947, aged 39.

William Henry Probert, Berkeley, Calif.; Washington University School of Medicine, St. Louis, 1921; member of the American Medical Association; at one time associate professor of pathology at the New York Homeopathic Medical College and Flower Hospital in New York; served during World War II; died January 12, aged 54, of coronary occlusion.

Samuel Brown Pulliam ⊕ Paducah, Ky.; Chicago Homeopathic Medical College, 1902; for many years city commissioner, served during World War I; affiliated with the Riverside Hospital; died January 8, aged 78, of heart disease

William Henry Remer, La Crosse, Wis.; Chicago Homeopathic Medical School, 1904; member of the American Medical Association; past president of the Vernon County Medical Society; served during World War I; affiliated with St. Francis and La Crosse hospitals; for many years president of the Chaseburg State Bank in Chaseburg; died Dec. 21, 1947, aged 70, of rheumatic heart disease.

Philip Lee Ring, Bellaire, Ohio; Cleveland Homeopathic Medical College, 1905; died January 2, aged 75, of Parkinson's disease.

John Turner Rose, Vineland, N. J.; Baltimore Medical College, 1894; died in the Ivy Hall Sanitarium, Bridgeton, Dec. 17, 1947, aged 78, of cerebral hemorrhage and arteriosclerosis.

Eugene Paul Schaefer ⊕ Irvington, N. J.; Columbia University College of Physicians and Surgeons, New York, 1905; affiliated with the Irvington General Hospital, where he died Dec. 5, 1947, aged 66, of coronary occlusion.

Robert Felix Schanz ⊕ Rochester, N. Y.; University of Michigan Medical School, Ann Arbor, 1915; specialist certified by the American Board of Urology; member of the American Urological Association; served during World War I; affiliated with St. Mary's Hospital; died Dec. 30, 1947, aged 56, of Hodgkin's disease.

Benjamin Schnee, South Sioux City, Neb.; University of St. Andrews Conjoint Medical School, St. Andrews and Dundee, Scotland, 1935; city health officer; received the Bronze Star and Purple Heart decorations for service during World War II; affiliated with St. Vincent's Hospital and the Lutheran Hospital in Sioux City, Iowa; died Dec. 24, 1947, aged 37, of coronary thrombosis.

Otto W. Shelksohn, Dorrance, Kan.; Baltimore University School of Medicine, 1894; died in the Ellsworth (Kan.) Hospital Dec. 28, 1947, aged 77, of cerebral hemorrhage.

Mahlon Cross Smalley, Gladstone, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; died Dec. 11, 1947, aged 80, of cerebral hemorrhage and arteriosclerosis.

Jeff D. Smith, Violet Hill, Ark.; Memphis (Tenn.) Hospital Medical College, 1895; died in the Craig Hospital, Batesville, Dec. 31, 1947, aged 80, of bronchopneumonia

R. E. Lee Steiner, Salem, Ore.; Willamette University Medical Department, Salem, 1898; member of the American Medical Association; in 1937 resigned as superintendent of the Oregon State Hospital after thirty years of service; died Dec. 20, 1947, aged 78.

Edgar Blaine Stonesifer ⊕ Williamsburg, Ky.; Lincoln Memorial University Medical Department, Knoxville, Tenn., 1914; served on the county health department; local surgeon for the Louisville and Nashville Railroad; died in the Norton Memorial Infirmary, Louisville, Dec. 27, 1947, aged 62, of heart disease.

Daniel Joseph Sullivan ⊕ Manchester, N.H.; Tufts College Medical School, Boston, 1916; fellow of the American College of Surgeons; died Dec. 16, 1947, aged 56.

Bruce Stevens Weaver ⊕ Stamford, Conn.; University of Michigan Medical School, Ann Arbor, 1910; specialist certified by the American Board of Pathology, Inc.; member of the American Society of Clinical Pathologists; served on the staffs of St. Joseph's Hospital and the Stamford Hospital, where he died January 8, aged 65.

Gilbert B. Wimberley, Reform, Ala.; Medical College of Alabama, Mobile, 1892; member of the American Medical Association; past president of the Pickens County Medical Society; county commissioner of revenue; died in Tuscaloosa Dec. 13, 1947, aged 78, of cerebral hemorrhage.

George Irvin Yearick ⊕ Pittsburgh; Medico-Chirurgical College of Philadelphia, 1903; member of the American Psychiatric Association; served during World War I; resident physician at the Municipal Hospital, where he died Dec. 29, 1947, aged 77, of cerebral arteriosclerosis.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 22, 1948.

Therapeutic Social Clubs for Mental Patients

In order to promote the formation of therapeutic clubs for patients both in and out of mental hospitals a meeting was organized in London by the Institute of Social Psychiatry. Dr. J. Bierer, director of the institute, said that the experience of social clubs now extended over nine years. In their establishment many problems had to be faced: how to provide freedom of action and self government, including the mixing of the sexes, with existing regulations, traditions and responsibilities. If patients were put in charge, there was the risk that an aggressive patient might take possession of the club and misuse it for the exploitation of his aggressive instincts. On the other hand, if a psychiatrist or nurse were in complete charge, the patients would feel that they had no say in the matter. The best solution was to let the patients have charge of the club, members of the nursing and other staff to attend by invitation, but to have honorary members, including the medical superintendent, the matron and the psychiatrist. In a club of which he had experience a few marriages had taken place and proved suprisingly successful. Two friendships had to be interfered with in order that they might not develop into a more serious alliance; one concerned an epileptic person and the other a patient with multiple sclerosis. But in the majority of cases there was no reason to suppose that any harm would follow, either from the eugenic or human point of view. Conditions in the club approximated more or less to everyday life. The majority of the patients behaved more naturally in the club, which made it possible to use it for diagnostic purposes. A second club was established for chronic and deteriorated patients, and gave them some opportunity to exercise initiative.

Patients got so accustomed to active social life in the hospital that they missed it after discharge. This led to the formation of extramural clubs. This idea underwent a large extension when confronted with the great number of a social, solitary and retiring persons attending outpatient departments. In forming such clubs it was important to avoid any stigma; therefore the club premises were away from hospitals and the name of the club did not indicate its nature. In most of the clubs friends and relatives were also members. Some of these were potential patients, and thus the club was of assistance in prophylaxis.

Dr. Donald Blair, deputy superindendent of a mental hospital, thought that the maximum number of patients in a club should be between 40 and 50. It is important to have a nucleus of patients of reasonably high intelligence, and the regular attendance of a psychiatrist at club functions is important. These should include lectures, discussions, dances and dramatic performances.

New Hearing Aid to be Supplied Free Under National Health Service

True to its socialistic policy, the government is having manufactured a new hearing aid which will be supplied free to all persons with defective hearing. Most of the existing hearing aids use valves of American design and manufacture, and there has been difficulty in obtaining replacements. The government has now placed an order with the Mullard Wireless Service Company for 400,000 valves, and a similar number of "medresco" units are to be produced, together with 100,000 annual replacements, involving a total cost of $20,000,000 a year for the whole scheme. It is claimed that a remarkable advance in the British technic of manufacturing valves has enabled this country to enter a world market previously dominated by American manufacturers. The "medresco" unit is a wedge-shaped instrument with a maximum width at the top of 2 1/2 inches (6.35 cm.), reduced at the bottom to 1 1/2 inches (3.8 cm.). The over-all length is 3 1/4 inches (8.26 cm.), and it is 1 inch (2.54 cm.) thick. The unit houses an amplifier using two valves which are less than 1/2 inch (1.27 cm.) in diameter. On the other hand, the manufacturers of commercial hearing aids have, through their association, issued a manifesto claiming that the government hearing aid already is obsolete, as they have produced better types of hearing aids.

OSLO

(From Our Regular Correspondent)

March 10, 1948.

Venereal Disease in the Army

When the Norwegian army sent a contingent in 1947 to Germany, the prospect of extensive infection of the young Norwegians with venereal disease renewed an old problem. Were the military authorities to put preventives at the free disposal of all who intended to expose themselves to infection? To do so would raise the outcry that the authorities were condoning and actually conniving at immorality. But a *laisser faire* policy offered no attractive alternative, and in the end preventives won the day. Whereupon there was a storm of protest in the press at home, and the clergy and other influential members of the community invited every one to join in a protest against the new order. Counter protests followed, and at least one important women's organization joined in them. The Norwegian Storting, or Parliament, is to be bombarded by protests signed by thousands of signatories who look at the problem exclusively from the ethical aspect and who hope that the army authorities will be instructed to dissociate themselves from any patronage of preventives.

Dr. K. Grette, of the Norwegian Army Medical Service, reports that in the seven month period February to August 1947, 54 cases of syphilis, 154 of gonnorrhea and 9 of ulcus mollecutis were observed in the Norwegian contingent in Germany. The incidence of syphilis in this contingent was 13.5 per thousand, whereas it was only 2.1 per thousand in the army at home. The same remarkable difference was observed with regard to gonorrhea, for which the figures were 38.3 and 9.8 per thousand respectively. In about 25 per cent of the cases of venereal disease the names and addresses of the persons who infected the soldiers were reported, whereas at home some 60 per cent of the sources of infection were reported. Of 113 soldiers answering questions about the use of preventives, 99 said they had not used condoms, whereas 14 had done so. The rate of infection was much higher among the Norwegian soldiers enjoying a holiday in Holland, Belgium or Denmark than among those on duty in Germany.

Correspondence

AN INTERNATIONAL SCHOOL OF MEDICINE

To the Editor:—I note with interest the letter from Dr. Merl G. Colvin in The Journal, February 21, in which he proposes the establishment of an International School of Medicine. The problem of our responsibility and opportunity in meeting the needs of the foreign countries interest me greatly. The role of medicine and the health sciences is an extremely important one in the concept of present world affairs. The war has left us with a responsibility and an opportunity formerly expected of Europe, and, as Dr. Colvin's letter implies, this small world's health vitally affects our own health and economy. Too often in the past, however, foreign students whose countries present a different economic and social picture from ours have been sent to our schools, which of necessity educate and train men for situations as they exist in this country. Many have returned to their own countries, where they are often discontented or frustrated in the attempt to apply American plan. Others have failed to return to their countries.

The present needs of our own country and the enormous number of native applicants for the study of medicine finds most medical schools in a helpless position; nor are the schools adequately equipped in budget and facilities to encourage any increased registration, native or foreign. In the postdoctorate (residency) program we have a professional (not a medical school) training for specialization in this country. Like the undergraduate curriculum, this too has far too many applicants from our own country. There would be no great benefit to foreign countries if such opportunity were given their students. The problem of visas, subsidy and transcripts is a headache to any school which attempts or encourages opportunity for foreign students at any level. The time may come when individual schools may elect one area of foreign need and become better acquainted with those needs by visits of faculty members on leave. Nevertheless, it is apparent to me that this is no adequate solution to the whole problem.

It would appear to me that a separate school, not bound by too strict an interpretation of prerequisites but allowing variations and flexibility, would be worth considering. It is conceivable that some foreign students would be better served by a program somewhat similar to that of the Central Medical School of Fiji. Primarily for the native needs in the South Pacific Islands, outstanding young men of the various tribes are selected by this school for a two year course in which their native taboos, beliefs and customs are not forgotten. Phenomenal good to the tribe results in the return of these young men to take up the methods adapted to their environment. Hygiene, sanitation, recognition and treatment of certain diseases and minor surgery are remarkably handled. I fear the imposition of a strictly American medical education would be inappropriate and disastrous. There should be recognition of grades of needs and intensities of training, varying with the native background. To fit them for the practice of medicine in these United States would seem by comparison a costly waste and, at present, an impossibility.

FRANCIS SCOTT SMYTH, M.D.,
California.

FACTORS AFFECTING NEED FOR PHYSICIANS

To the Editor:—The editorial in THE JOURNAL February 28, p. 6267, " Is There a Shortage of Physicians? " *answers the " wolf cry " of the* government well. The editorial did not consider a few important factors. Most important, after estimating the birth rates and death rates for the future as well as the number of graduates in medicine, will be the extra time necessary with each patient in using new methods to do a fine grade of work as well as in heading off malpractice suits. And as new discoveries are made, how many more new specialities there will be.

A good example of the latter is allergy. The specialists are needed, but it is just that many more physicians removed from the field of general practice. American physicians are doing good work. Now, as the thoroughness of the work improves in such matters as better history taking, more thorough examinations and more laboratory aids, the more time it takes for each patient. That may be the reason for the apparent shortage of physicians. That is one reason why the ratio of physicians per thousand population must increase, but not at the expense of poor training.

People are better informed and demand better medicine. The economic level in this country is high. Many cases of hernia, varicose veins, blemishes and a few hundred other pathologic conditions are receiving attention that would be neglected if finances were at a low level.

J. W. ROBINSON, M.D.,
Los Angeles.

ASPHYXIA OF THE NEWBORN

To the Editor:—May I comment on the query on page 358 of THE JOURNAL, January 31, " Asphyxia of the Newborn?" Predelivery oxygen administered to the mother is probably only effective if administered for fifteen to thirty minutes prior to delivery and discontinued as the presenting part passes the perineum. Observation indicates that uterine contraction which diminishes the area of placentation decidedly reduces the interchange of blood gasses. Such change in the size of placentation naturally results when there is decrease in the contents of the uterine cavity. I agree that respiratory movements precede delivery.

Unpublished studies in 1931 and 1932 indicated that the oxygen content of fetal cord venous blood at the instant of delivery average from 1.5 to 2.4 mg., per hundred cubic centimeters, and in a occasional case the oxygen content was even lower. The carbon dioxide content was 15 to 18 mg. Therefore predelivery oxygen to the mother is necessary so that the cells of the respiratory center will be oxygenated enough to be able to respond to the stimulus of increased carbon dioxide tension. Such increased carbon dioxide tension will work properly on a newly oxygenated cell and continue the respiratory movements initiated during intrauterine life.

I agree that heavy analgesia and anesthesia depress intrauterine respiratory activity and, if still present in the postdelivery circulation, depress extrauterine respiratory activity. Therefore, all of the preceding premise is based on the use of analgesia and anesthesia which is controlled to an optimum point of success without damage.

LOWELL F. BUSHNELL, M.D.,
Los Angeles.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in THE JOURNAL, March 27, page 896.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Examination. Montgomery, June 22-24, 1948. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery 4.

ARIZONA:* Examination. Phoenix, April 6-7. Endorsement. Phoenix, April 19. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS:* Examination. Little Rock, June 3-4. Sec., Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana. Eclectic: Little Rock, June 3. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: Oral. San Francisco, June 5-6; Los Angeles, Aug. 7-8. Written Examination. San Francisco, June 7-10. Los Angeles, Aug. 9-12. Oral and Clinical Examination for Foreign Graduates. San Francisco, June 6. Sec., Dr. Frederick N. Scatena, 1020 N Street, Sacramento 14.

COLORADO:* Examination. Denver, June 21-23. Final date for filing application is June 5. Endorsement. Sec., Dr. J. B. Davis, 831 Republic Bldg., Denver.

DELAWARE: Examination. Dover, July 13. Endorsement. Dover, July 22. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

FLORIDA:* Examination. Jacksonville, June 29-30. Sec., Dr. Harold D. Van Schaick, 6675 Windsor Lane, La Gorce Island, Miami Beach 41.

HAWAII: Examination. Honolulu, July 12-15. Sec., Dr. S. Doolittle, 881. S. Hotel St., Honolulu.

IDAHO: Boise, July 13-15. Sec., Bureau of Occupational Licenses, Miss Estella S. Mulliner, 355 State House, Boise.

ILLINOIS: Chicago, April 6-8. Supt., Dept. of Registration and Education, Mr. Fred W. Ruegg, Springfield.

INDIANA: Examination. Indianapolis, June 1948. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, K of P Bldg., Indianapolis.

KANSAS: Kansas City, June 9-10. Sec., Board of Medical Registration & Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Examination. Louisville, June 16-18. Sec., Dr. P. E. Blackerby, 620 S. 3d St., Louisville.

MARYLAND: Medical Examination. Baltimore, June 15-18. Sec.-Treas., Dr. Lewis P. Gundry, 1215 Cathedral St. Baltimore. Homeopathic Examination. Baltimore, June 15-16. Sec., Dr. J.A. Evans 612 W. 49th St. Baltimore.

MINNESOTA:* Minneapolis, April 20-22. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul.

MISSISSIPPI: Jackson, June 1948. Asst. Sec., State Board of Health, Dr. R. N. Whitefield, Jackson.

MISSOURI: Examination. St. Louis, May 24-26. Final date for filing application is April 24. Exec. Sec., Mr. John A. Hailey, State Capitol Bldg., Jefferson City.

MONTANA: Helena, April 5-7. Sec., Dr. O. G. Klein, First Nat'l Bank Bldg., Helena.

NEBRASKA:* Examination. Omaha, April 5-7. Dir., Mr. Oscar F Humble, Room 1009 State Capitol Bldg., Lincoln 9.

NEVADA: Carson City, May 3. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

NEW JERSEY: Examination, Trenton, June 15-17. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NORTH CAROLINA: Endorsement. Pinehurst, May 4. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

NEW YORK: Examination. Various Centers, June 28 - July 1. Sec., Dr. J. L. Lochner, Education Bldg., Albany.

OHIO: Endorsement. Columbus, April 6. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

OKLAHOMA:* Oklahoma City, June 2-3. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON:* Endorsement. Portland, May 7-8. Final date for filing application is April 23. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland.

PENNSYLVANIA: Examination. Philadelphia & Pittsburgh, July. Act. Sec., Bureau of Professional Licensing, Mrs. M. G. Steiner, 351 Educational Bldg., Harrisburg.

SOUTH CAROLINA: Written Examination. Columbia, June 21-23. Endorsement. April 5. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA:* Pierre, July 20-21. Sec., Dr. Gilbert Cottam Capitol Bldg., Pierre.

UTAH: Examination. Salt Lake City, June, 1948. Asst. Dir., Department of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: Examination. Richmond, June 18-19. Endorsement. Richmond. June 17. Sec., Dr. K. D. Graves. 306 Medical Arts Bldg., Roanoke.

WEST VIRGINIA: Charleston, April 5-7. Comm., Public Health Council, Dr. N. H. Dyer, State Capitol Bldg., Charleston.

WISCONSIN:* Milwaukee, June 29-July 1. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Examination. Cheyenne, June 7. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARKANSAS: Little Rock, May 4. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

COLORADO: Examination. Denver, June 2-3: Sec., Dr. E. B. Starks, 1459 Odgen St., Denver.

CONNECTICUT: Examination. June 12., Exec. Asst., Mr. W. G. Reynolds, 110 Whitney Ave. New Haven 10.

DISTRICT OF COLUMBIA: Examination. Washington, April 19-20. Sec. Dr. G. C. Ruhland, 4130 Municipal Bldg., Washington.

FLORIDA: Examination. June 5. Final date for filing application is May 23. Sec., Mr. M. W. Emmel, Univ. of Florida, Gainesville.

IOWA: Des Moines, April 13, Oct. 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: Examination. Ann Arbor and Detroit, May 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

MINNESOTA: Examination. Minneapolis, April 6-7. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

NEBRASKA: Examination. Omaha, May 4-5. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, Room 1009 State Capitol Bldg., Lincoln 9.

OREGON: Examination. Portland, June 19. Sec., Basic Science Examining Committee, Mr. C. D. Byrne, Univ. of Oregon, Eugene.

SOUTH DAKOTA: Examination. Vermillion, June 4-5. Sec., Dr. G. M. Evans, 310 E. 15th St., Yankton.

WISCONSIN: Examination. Madison, April 3. Sec., Dr. W. H. Barber, Scott & Watson Sts., Ripon.

Medical Motion Pictures

FILM REVIEWS

Observations on Hepatitis. 16 mm., black and white, sound, 1,200 feet (one reel), showing time thirty minutes. Prepared in 1946 by Joseph Stokes Jr., M.D., professor of pediatrics, University of Pennsylvania, Philadelphia. Produced by and procurable on loan from Mead Johnson & Company, Evansville, Ind.

This is a lecture film in which numerous charts are used in illustration. The film concerns largely an epidemic of infectious hepatitis in a Jewish children's camp near Philadelphia. Careful studies were conducted on the epidemiology of the illness. The causative agent was isolated and studied. This film is suitable for showing to physicians interested primarily in public health, pediatricians, internists and medical students.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Revocation of License for Gross Immorality in Connection with Diabetes Treatment.—In a proceeding before the state board of medical registration and examination the respondent's license to practice medicine was revoked, but on appeal to the circuit court the revocation was set aside. The board therefore appealed to the Supreme Court of Indiana. The petition seeking revocation of the respondent's license was based solely on the ground that respondent was guilty of "gross immorality" in the practice of medicine and, said the Supreme Court, the only question before the circuit court was therefore whether or not the decision of the board was based on "a substantial factual foundation."

The respondent was admitted to practice medicine, surgery and obstetrics in the state of Indiana in 1897 and for one year prior to October 6, 1946, he maintained his office, designated at times as a diabetic institute, in South Whitley, Ind. During this period this office had at least 100 patients a day, and there were over sixty rooming houses in South Whitley taking care of these patients. In October 1945 the respondent and his brother practiced at that office. They made representations to patients that they could cure diabetes and on at least one occasion made such representations to an admitted diabetic person who had been suffering from the disease for at least six years. They also told her that she could eat about anything and gave her a diet sheet which stated that most anything that has been made with sugar that has been thoroughly cooked is beneficial to one suffering from this disease. A pamphlet distributed at the institute, and prepared by the respondent's brother, who was associated with him, disclosed that they were doing business under the name of "Kaadt Diabetic Institute." This pamphlet contained a foreword wherein it was stated that there was real hope for the diabetic person through their method of treatment; that the principal method of treatment employed was an internal medicine taken by mouth; that in a majority of cases the patient resumes a normal diet within two or three weeks after beginning the treatment, and that in a large number of cases recovery had occurred. Patients were advised to attend the institute for three days, for which there was a charge of $30.00 including board; on leaving they were given a three months' medical treatment to take home with them, for which there was a charge of $30.00. The medicine which was to be taken home consisted of 1 gallon of liquid in a glass container, the liquid consisting of vinegar to which had been added potassium nitrate, some pepsin and takadiastase. The wholesale cost of this liquid medicine was 93 cents per gallon. In addition the patient was given a box of cathartic and digestive pills to take during his home treatment.

The board's evidence showed that the respondent prescribed for patients without any physical examination and that he prescribed and gave medicine for diabetes to persons who were free from that disease. In no case was the necessary blood test made for sugar before prescribing for patients. Insulin and diet are the only known and accepted methods of treatment for diabetes; there is no oral treatment recognized by the medical world; removing patients suffering from this disease from insulin is dangerous and may be fatal. The consumption of sugar by a diabetic person is injurious to him, and the fact that sugar has been cooked does not render it harmless. The treatment adopted by the respondent is not approved by any other person in the profession. There have been no clinical tests or experimental stage in the development of this medicine; the treatment and medicine prescribed by the respondent is of no benefit to diabetic persons. The giving of the same has at times injured the patients, and some have died from its effect.

In order for the foregoing evidence to establish gross immorality, said the Supreme Court, we must conclude that it is sufficient to support the inference that the practice complained of was not an honest effort to relieve suffering but was a scheme for unjust enrichment. The important question is what the respondent knew to be the facts. If the treatment was not a cure or a proper remedy for diabetes, and he knew this to be a fact, then he was guilty of a scheme to defraud. It has been said, the Supreme Court continued: "That false and fraudulent representations may be made with respect to the curative effect of substances is obvious. It is said that the owner has the right to give his views regarding the effect of his drugs. But state of mind is itself a fact, and may be a material fact, and false and fraudulent representations may be made about it; and persons who make or deal in substances or compositions alleged to be curative are in a position to have superior knowledge, and may be held to good faith in their statements. It cannot be said, for example, that one who should put inert matter or a worthless composition in the channels of trade, labeled or described in an accompanying circular as a cure for disease, when he knows it is not, is beyond the reach of the lawmaking power."

The respondent contended that to empower the board to pass on his good faith would have a crippling effect on advances in medicine science, as it would prevent the use of new remedies. With this we cannot agree, said the Supreme Court. A physician is not limited to the most generally used of several approved modes of treatment, and the use of another mode known and approved by the profession is proper, but every new method of treatment should pass through an experimental stage in its development, and a physician is not permitted to make untested experiments on patients.

In conclusion the Supreme Court noted that the respondent was a man of broad professional experience, sufficiently educated in his profession. The board was therefore justified in not attributing the acts complained of to mistake arising out of inexperience or lack of knowledge. Accordingly, the Supreme Court was of the opinion that there was sufficient competent evidence in the record to support the finding of the board, and the board's order revoking the respondent's license was therefore sustained.—*Board of Medical Registration and Examination of Indiana v. Kaadt, 76 N. E. (2nd) 669 (Ind., 1948).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American J. Digestive Diseases, Fort Wayne, Ind.

14:381-412 (Dec.) 1947

*Gastric Secretory Studies with Mucin Antacid Mixture. E. M. Kammerling and F. Steigmann.—p. 381.
Ulcerative Colitis: Evaluation of Etiology, Symptomatology and Therapy. M. Kirshen.—p. 384.
*Consideration for Surgery in Ulcerative Colitis. R. R. Best.—p. 388.
Comments on Laboratory Diagnosis of Enteric Infections. O. Felsenfeld and Viola M. Young.—p. 392.
Appetite and Overeating in Their Relation to Obesity. J. Bauer.—p. 397.
Use of Non-Nutritive Materials to Satisfy Hunger. F. Hoelzel.—p. 401.

Gastric Secretion with a Mucin Antacid Mixture.—A new antacid consisting of a mixture of mucin, aluminum hydroxide and magnesium trisilicate has been compared by Kammerling and Steigmann with other currently used antacids concerning its effect on gastric acidity. The mixture appeared to decrease acidity in a higher percentage of cases, and this antacid effect seemed to last longer than with other substances. There seemed to be less rebound of the acidity with this substance. It is palatable, easily taken and has a better antacid effect when chewed carefully before swallowing it.

Surgery in Ulcerative Colitis.—Best believes that the treatment for ulcerative colitis is primarily medical, and that about 90 per cent of the cases will respond to it to a greater or lesser degree. He reviews the dietetic management, the measures directed toward minimizing intestinal spasm, the use of sulfonamide drugs, blood transfusions and psychsomatic factors. Appendicostomy and cecostomy are to be condemned. Colostomy of the transverse colon is justified in the infrequent segmental ulcerative colitis involving the left side of the colon. Ileosigmoidostomy is seldom justified, as it is most unusual to find ulcerative colitis involving only the proximal colon and leaving the rectum and sigmoid free from invasion. In only one of the author's cases did ileosigmoidostomy seem indicated, and to date, at the two year period, the result appears quite satisfactory. The author has seen 2 patients, who were subjected to primary ileosigmoidostomy by other surgeons when the rectum was apparently free of the disease, in whom there developed a severe ulcerative proctitis within a few months. Ileostomy is the procedure usually indicated. The type and position of the ileostomy stoma are important. The loop ileostomy should be used only in extreme emergencies. The end type ileostomy is preferable. In a recent check of 71 consecutive cases of ulcerative colitis only 9 patients were subjected to surgical intervention. Eight of these were given ileostomies. Two emergency ileostomies were performed, of which 1 was fatal. The 6 patients with elective ileostomies recovered. The ninth patient to undergo operation recovered following an ileosigmoidostomy. Among the 63 patients not operated on there were 2 deaths. There is not sufficient evidence that early ileostomy in ulcerative colitis will result in permanent cure of the disease. The author is of the opinion that it is far better to have a few patients arrive too late for surgery than to subject too many to unnecessary surgery, which to be of value is rather mutilating and usually leaves the patient with a permanent ileostomy.

American Journal of Medical Sciences, Philadelphia

214:585-712 (Dec.) 1947

Method of Determining Site of Retention of Aerosols Within Respiratory Tract of Man by Use of Radioactive Sodium: Preliminary Report. T. R. Talbot Jr., Edith H. Quimby and A. L. Barach.—p. 585.
Meningococcemia Without Meningitis: Review of 5 cases. L. L. Terry and C. W. Jones.—p. 593.
Studies in Epilepsy: Experimental Induction of Grand Mal Seizure During Hypnoidal State Induced by Sodium Amytal. W. Barker and S. Wolf.—p. 600.
Mental Deficiency of Prenatal Origin: Challenge to Preventive Medicine. P. Gruenwald.—p. 605.
Studies on Experimental Phosgene Poisoning: IV. Effect of "Pressure Breathing" on Pulmonary Edema of Phosgene Poisoning. R. D. Boche H. D. Bruner, T. R. Talbot Jr. and others.—p. 612.
Anatomy of Pancreatic Ducts: Etiology of Acute Pancreatitis. J. Howard and R. Jones.—p. 617.
Coronary Arteries of Infants. W. L. Minkowski.—p. 623.
Estrogens in Urine and Cytology of Vaginal Smears After Use of Estrogenic Cream. J. Eidelsberg.—p. 630.
Observations Concerning Influence of Potassium on Action of Digitalis Glycoside (Lanatoside C). M. Friedman and R. Bine Jr.—p. 635.
*Prolonged Hypercalcemia and Metastatic Calcification of Sclera Following Use of Vitamin D in Treatment of Rheumatoid Arthritis. J. W. Frost, F. W. Sunderman and I. S. Leopold.—p. 639.
*Tularemia Treated with Streptomycin. J. B. Johnson, C. B. Wilkinson and E. Figueras.—p. 645.
*Role of Liver in Renal Sulfonamide Complications. J. F. Kuzma and T. Z. Polley.—p. 651.
Tolerance to Intravenously Administered Protein Hydrolysate in Severe Human Liver Cirrhosis. Jessica H. Lewis, F. H. L. Taylor and C. S. Davidson.—p. 656.
Urinary Excretion of 3,3-Diethyl-2,4-Dioxotetrahydropyridine in Man. P. Polatin, E. Hirschberg, S. H. Rubin and L. A. Pirk.—p. 662.
Gastric Secretory Response in Hypoglycemia as Produced During Insulin Shock Therapy. C. H. Hiles.—p. 667.
Multiple Attacks of Meningitis: Report of Case with Autopsy. A. L. Hoyne and A. Schultz.—p. 673.
Clinical Applications of Bone Marrow Examinations in Childhood. I. J. Wolman and B. Dickstein.—p. 677.
Current Trends in Obstetric Analgesia. P. O. Klingensmith.—p. 688

Metastatic Calcification of Sclera Following Use of Vitamin D.—Frost and his associates report the case of an elderly woman who five years prior to admission first noticed arthritic pains in her hands, shoulders, elbows and knees. Her physician placed her on treatment with a proprietary brand of vitamin D. She continued to take this preparation for a period of three and one-half years, taking an average dose of two and a half capsules daily (125,000 units). Studies on the calcium metabolism of this patient revealed that although vitamin D therapy had been discontinued eight months previously, hypercalcemia persisted and on a low intake of calcium a relatively high excretion of calcium was maintained in the urine. In addition there was evidence of diminution of renal function. Calcium deposits into the sclera and cornea were prominent features. These studies support the view that administration of large doses of vitamin D may have a prolonged effect lasting over a period of months.

Tularemia Treated with Streptomycin.—Johnson and his associates report on streptomycin therapy of 5 patients with tularemia. In each case the handling of wild rabbits was the source of infection. Two patients with the typhoidal type of the disease and 1 of the 3 with the ulceroglandular type were critically ill on admission. Systemic manifestations of the disease were promptly controlled, and the primary ulcer healed in less than half the usual time. Lymphadenopathy subsided promptly in a patient treated early but progressed to suppuration in another treated late. Neither intramuscular nor intraglandular injection of streptomycin in a patient with a suppurating node could obviate the need for adequate surgical drainage. Streptomycin therapy does not alter the immunity response, since agglutination titers tend to rise as in untreated cases.

Role of Liver in Renal Sulfonamide Complications.—Kuzma and Polley say that the role which liver plays in renal sulfonamide complications is emphasized by the frequency of such developments in chronic hepatic diseases and in instances of hepatic injury due to sulfonamide compounds. In a previous report 14 cases of renal sulfonamide complications were described and the hepatorenal relationship was considered. Since that time 5 additional fatal sulfonamide complications have been studied, making a total of 19. The incidence of hepatic disease as a background in renal sulfonamide complications is emphasized by the presence of hepatic damage in 6 cases of fatal nonobstructive sulfonamide nephrosis. Lesser hepatic lesions were found in 4 additional patients, 3 of them with sulfonamide lithiasis, making a total of 10 cases. The specific nature of the hepatic lesion is not as important as the fact of diffuse liver impairment and is not correlated with the seriousness of renal injury. Liver diseases of nutritional deficiencies anemia. Administration of iron is the most important part of the treatment of this type of anemia; 15 to 45 grains (0.97 to 2.91 Gm.) of ferrous sulfate are given daily in divided doses with or after meals. Liver therapy is not indicated and is a needless expense. Folic acid is ineffective. The macrocytic anemias, particularly pernicious anemia are characterized by large cells which are well filled with hemoglobin, have a color index over 1 and high cell indexes. Folic acid is as effective in producing and maintaining blood regeneration at satisfactory levels in macrocytic anemias as is liver extract. It does not, however, protect against degenerative changes in the central and peripheral nervous system which frequently develop in persons with addisonian pernicious anemia; nor does it reverse these neurologic changes once they have developed. Folic acid is indicated in macrocytic anemia accompanying or secondary to pregnancy, pellagra, hepatic disease or gastrointestinal disorders. Sprue and in particular nutritional and pernicious anemia require diagnostic differentiation, as folic acid alone is not sufficient in the latter.

Journal-Lancet, Minneapolis

67:427-464 (Dec.) 1947

Brain Tumors: Value of Early Diagnosis. A. W. Adson.—p. 427.
Surgical Relief of Pain. H. F. Buchstein.—p. 431.
Staphylococcus Pneumonia and Empyema. J. H. Benward.—p. 434.
Comparative Uses of Pentothal Sodium in Civilian and Military Practice. R. M. Tovell and C. M. Barbour.—p. 437.
Masochism in Medical Patient. A. Challman.—p. 444.
Observations on Treatment of Recurring Convulsions (Epilepsy) Occuring Among Children. H. M. Keith.—p. 449.
Glucuronic Acid Deficiency in Rheumatic Diseases. E. A. Peterman.—p. 451.

68:1-40 (Jan.) 1948

Physiologic Characteristics of Uterine Cancer in Relation to Radiation Therapy. J. F. Nolan.—p. 1.
Clinical Use of Antibiotics with Special Reference to Penicillin and Streptomycin. W. E. Herrell.—p. 6.
Visual Examination for School Children. J. DeWitt Schonwald.—p. 10.
*Lipomas of Large and Small Intestine: Clinical and Pathologic Study of 12 Cases Which Produced Symptoms Necessitating Surgical Intervention. R. J. Tenner.—p. 12.
Acute Bronchiolitis in Children. J. H. Benward.—p. 24.

Lipomas of Intestine.—Tenner reports 12 cases of lipomas of the large and small intestines, which produced symptoms and which were removed surgically. Lipomas occur more commonly in the large intestines. The average age at which they presented themselves by producing symptoms was 53 years in this series. Pain was the major symptom. Vomiting associated with pain was present in over half of the cases. Diarrhea and constipation was variable. There was weight loss in the majority of cases. Ulceration of the mucosa covering the lipomas was present in all but 1 case. This can be due to pressure injury as in intussusception or to trauma as in partial obstruction, or to infarction as from pressure on the blood vessels from the growth and development of the tumor. In spite of the incidence of ulceration blood was infrequently found in the stool. In many cases the preoperative diagnosis is that of a malignant neoplasm. This frequent error is due to the obstructive nature, the age of the patient and the loss of weight. Treatment is surgical. Local excision of the growth and direct closure or anastomosis is the ideal procedure when the lesion is not too extensive. Another procedure is a resection of the segment of bowel which contains the tumor.

Journal of National Malaria Society, Columbia, S. C.

6:219-252 (Dec.) 1947

Aerial Mapping in Malaria Control. C. C. Kiker and P. Morris.—p. 219.
*Potentialities of Transportation of Exotic Anophelines by Airplane. A. Miller, R. W. Burgess and S. J. Carpenter.—p. 227.
Transmission of Plasmodium Gallinaceum by Anopheles Quadrimaculatus. V. H. Haas and H. Akins.—p. 244.
Metabolism of Cinchonine in Dogs and In Man. J. C. Andrews and W. E. Cornatzer.—p. 246.

Transportation of Exotic Anophelines by Airplane.—The possibilities of aeronautic transportation of mosquito vectors of disease has been appreciated, according to Miller and his co-workers, for about twenty years. International quarantine regulations of 1933 and 1944 include measures to combat this danger. Analysis of the records of inspections at Miami, Brownsville and New Orleans during the past three years indicates that about 6 per cent of inspected planes harbored mosquitoes. If those recovered are regarded as representing 10 per cent of the mosquitoes actually present, conformable published data of one year provide transportation-rate indexes per one hundred planes of about 1 exotic mosquito and 0.3 to 0.6 exotic anophelines; if 11 per cent of these were alive, these rates indicate a hypothetic maximum of 10 to 20 viable exotic specimens of Anopheles in thirty thousand planes. The chances for a yearly importation of this magnitude to result in implantation of new anopheline species in the United States seem slight, in view of the many factors that can be expected to militate against their effective establishment. Despite the theoretically small chance of significant importation of exotic species, prudence and past experience require that quarantine precautions be maintained by mosquito control around airports; disinsectization of planes with improved methods and routine surveillance of exposed areas to detect incipient breeding of imported anophelines.

Journal Pharmacology & Exper. Therap., Baltimore

91:307-402 (Dec.) 1947. Partial Index

Effect of Ascorbic Acid in Reducing Inhibition of Brain Metabolism Produced by Pentobarbital in Vitro. Margaret E. Greig.—p. 317.
*Role of Liver in Detoxication of Thiopental (Pentothal) and Two Other Thio-Barbiturates. F. E. Shideman, A. R. Kelly and B. J. Adams.—p. 331.
Effects of Chronic DDT Intoxication in Rats on Lipids and Other Constituents of Liver. H. P. Sarett and B. J. Jandorf.—p. 340.
Studies of Mechanisms of Liver and Kidney Injury: III. Methionine Protects Against Damage Produced in Rat by Diets Containing Pyridine. J. H. Baxter.—p. 345.
Effect of Nikethamide on Coronary Blood Flow and Cardiac Oxygen Metabolism. J. E. Eckenhoff and J. H. Hafkenschiel.—p. 362.
Benzoylcholine and Atropine Esterases. S. Ellis.—p. 370.
Comparative Effects of Atabrine and of Streptomycin on Experimental Tuberculosis in Guinea Pig. A. G. Karlson, W. H. Feldman and H. L. Mason.—p. 379.
Toxicology of 1,2-Dichloroethane (Ethylene Dichloride): IV. Its Detoxication by l-Cystine, dl-Methionine and Certain Other Sulfur Containing Compounds. L. A. Heppel, Virginia T. Porterfield and N. E. Sharpless.—p. 385.

Hepatic Destruction of "Pentothal."—Shideman and his collaborators say that prior to 1940 it was assumed that "pentothal" was degraded primarily in the liver, but studies carried out after that seemed to indicate that the liver is not of outstanding importance in the inactivation of this drug. This lack of harmony induced the authors to use various in vivo and in vitro technics to determine whether or not the liver degrades "pentothal" and two other thiobarbiturates. In mice they found that hepatic damage due to carbon tetrachloride significantly prolonged the duration of effect of "pentothal sodium" and two other thiobarbiturates. Subtotal hepatectomy in rats produced a significant prolongation of the duration of action of "pentothal." Diminished blood flow through the liver, as produced by the Eck fistula technic in rats, increased the duration of action of "pentothal" and the two other thiobarbiturates tested. "Pentothal" was degraded in vitro by slices and minced portions of rat liver.

Missouri State Medical Assn. Journal, St. Louis

45:3-72 (Jan.) 1948

Carcinoma of Breast: Its Present Status. E. D. Sugarbaker and H. M. Wiley.—p. 17.
6-N-Propyl-Thiouracil in Treatment of Hyperthyroidism: Preliminary Report. D. L. Sexton and J. P. Murphy.—p. 22.
*Bismuth Therapy of Verrucae: Oral Administration of Sodium Bismuth Triglycollamate (Bistrimate Tablets). W. B. O'Connor and D. C. Tweedall.—p. 25.
Hyperparathyroidism: Summary of Important Findings in Ten Year Study of Case. E. P. Heller.—p. 26.
Mistaken Diagnoses of Tuberculsois. R. H. Kaplan and L. Levin.—p. 29.

Bismuth Therapy of Verrucae.—O'Connor and Tweedall employed oral administration of *sodium bismuth triglycollamate* ("bistrimate tablets") in the treatment of 14 patients with verrucae. The drug was administered after meals. Each tablet contained 410 mg. of sodium bismuth triglycollamate equivalent to 75 mg. of metallic bismuth. The dose varied from a minimum of three tablets to nine tablets daily. The case histories indicate that medication was continued for three weeks or longer. Eight of the 14 patients were completely cured, in that the multiple verrucae disappeared without trace; 4 patients showed improvement, and 2 did not manifest improvement. In 2 cases it was necessary to withdraw the drug because of intolerance. However, in 1 of these the verrucae disappeared entirely two weeks after cessation of therapy and in the other there was definite improvement at the time the drug was stopped.

Book Notices

Headache. By Louis G. Moench, M.D., Assistant Clinical Professor of Medicine, University of Utah School of Medicine, Salt Lake City. Cloth. Price, $3.50. Pp. 207, with 58 illustrations. The Year Book Publishers Inc., 304 S. Dearborn St., Chicago 4, 1947.

This small book is well organized and the subject matter is discussed in an orderly manner. There are ten chapters, all of which are rather short but comprehensive. The author draws freely on the experience of others and at the end of each chapter includes a well-selected bibliography. It would appear that a single bibliography at the end of the book would have avoided needless repetition of references. In chapter 1 the pathologic anatomy and physiology of headaches is discussed in simple terms. The mechanism of headache is made to appear rather simple. This may be true at times, but frequently in clinical work the mechanism of a given headache is difficult to demonstrate. In the succeeding chapters the author considers headaches from intracranial pathology, cranial nerve neuralgias, headache of ocular origin, headache of nasal origin and so forth. The final chapter deals with headache of emotional origin. This important chapter is well written, but in keeping with the size of the book it is all too short. In the discussion of headaches occurring after spinal puncture, the author calls attention to the fact that patients who are permitted to be up and about after the spinal puncture are less likely to have headaches than those confined to bed for twenty-four hours. In the discussion of meningitis several reports of cases are reviewed, which add little to the discussion of the subject of headaches or to the treatment of meningitis. Post-traumatic headache is given but limited space. The suggestion that neostigmine is helpful in treatment of post-traumatic headaches is not always borne out by clinical experience. Cervical arthritis as a cause of early morning headache may be somewhat overemphasized. No special mention is made of temporal arteritis as a cause of headache. The author has condensed in some two hundred pages a satisfactory review of the subject of headaches, and one may well recommend the book to medical students and physicians.

Contribuição para o estudo hematológico e clínico da anemia perniciosa (moléstia de Addison-Biermer). Por Michel Abu Jamra. Tese apresentàda à Faculdade de medicina da Universidade de São Paulo para o concurso de docência-livre, São Paulo. Paper. Pp. 316, with 31 illustrations. Emprêsa gráfica da "Revista dos Tribunais," Ltda., São Paulo, 1947.

The greatest value of this monograph on pernicious anemia lies in the completeness with which the author has reviewed the present knowledge of the subject. The bibliography is remarkably complete and will be of value to all workers in the field. The monograph opens with a detailed consideration of the pathogenetic mechanisms of anemia and a suggested new classification which seems to offer no advantages over the etiologic classification already in use for many years. Important stress, however, is laid on the constitutional and nutritive aspects of the etiology of pernicious anemia. The author has suggested subdivisions of the disease according to the predominance of anemic, gastrointestinal or neurologic symptoms and signs This emphasis seems unwarranted except to draw attention to the occasional case of combined system disease with little or no anemia. Studies of the urine of normal and pernicious anemia patients for antianemic activity were negative. The evidences for the maturing effect of the antipernicious anemia principle on megaloblastic marrow are reviewed. The theory that the excess bilirubin and urobilinogen comes from material incompletely synthesized into hemoglobin rather than from hemolysis and hemoglobin breakdown is supported. Studies on changes in plasma proteins and blood volume before and after therapy are reported and discussed. Alterations in the gastrointestinal secretions and bacterial flora and the sequelae of these changes are described in detail. The revival and extension of some of the pre-liver treatment theories is timely in view of certain evidences that such changes may play a role in producing megaloblastic anemia, e. g., the pernicious anemia-like picture occurring in association with multiple intestinal stenoses, the experimental production in animals on deficient diet that are given indole of an anemia which responds to liver extract. The extensive way in which the field of knowledge of pernicious anemia and related states is covered makes this monograph a most useful reference book on the subject. Unfortunately, owing to the rapid expansion of knowledge of folic acid, most of the more recent developments have taken place since the monograph was published. However, as the literature on the subject is confusing and had not led to satisfactory explanations of the mode of action of folic acid and its relationship to liver extract, this lack is not serious and does not detract from the merits of the book.

Electrocardiografía clínica con estudio de derivaciones unipolares. Por el Dr. Sergio Alvarez Mena, Instructor de la Facultad de medicina, Habana. Fabrikoid. Price, $10. Pp. 568, with 210 illustrations. M. V. Fresneda (Editor), Neptuno 561, La Habana, Cuba, 1947.

The author bases his textbook primarily on the concepts of F. N. Wilson and D. Sodi Pallares, to whom the book is dedicated. A short outline is given of cardiac anatomy and physiology, and the fundamentals of electrophysiology are discussed. "Unipolar" leads and the electrical axis are dealt with in great detail, the ventricular gradient is taken up in a special chapter, and the second half of the book is devoted to the arrhythmias and to clinical electrocardiography. Unfortunately, in some illustrations the tracings are mounted upside down; in other figures, shown for the demonstration of arrhythmias, much longer strips should be presented. Definite misinterpretations can be found, like that of a premature systole of sinus origin in figure 92 and of paroxysmal ventricular tachycardia in figure 139, the latter obviously an artefact; flutter with supposedly 3:1 auriculoventricular conduction is shown in figure 107; figure 96 is described as normal sinus rhythm, yet it shows an auricular tachycardia with 2:1 block. It is not clear why the author classifies premature systoles with inverted P waves and shortened PR interval as auricular premature systoles and not as auriculoventricular nodal in origin. The book is modern in its approach, and the author is familiar with the recent contributions to electrocardiography by American authors. It is to be hoped that the next edition will show the necessary corrections and some additional illustrations to make this volume a valuable book for the student of electrocardiography.

La pathogénie des altérations électrocardiographiques de la péricardite: Etude clinique et expérimentale. Por Eduardo Coelho, professeur à la Faculté de médecine de Lisbonne, Lisbonne. Conférence proférée à l'Académie suisse des sciences médicales (Zurich). Paper. Pp. 74, with 58 illustrations. The Author, Lisbon, 1947.

This monograph is based on the experience of the author with 138 cases of acute and chronic pericarditis (constrictive and nonconstrictive) of various etiology. It excludes the pericarditis associated with stenocardia. It analyzes the electrocardiographic data before and after operation. In 6 cases histologic examination of the myocardium was made at necropsy. The author refers to but does not document his results with experimental pericarditis, local and generalized, in dogs and monkeys. On the basis of these observations the author concludes that the mechanism for the electrocardiographic alterations is due to bioelectrical changes in the epicardium. In the 6 cases examined by the author he found no evidence of histologic changes in the subepicardial myocardium. He reports that in animals injury within the myocardium does not cause changes in the electrocardiogram, whereas injury at the surface does. It is well known, as the author found, that myocardial damage not surfacing on the epicardium (or endocardium) causes no injury currents, but it is difficult to see how injury of the lining of the heart, the epicardium, can. It is generally agreed that injury of the myocardium which surfaces on the epicardium is the primary cause of the injury effect seen in the electrocardiogram in pericarditis. It is apparent that injury effects may be present in the subepicardium which cannot be demonstrated histologically. Therefore, the evidence presented does not exclude this possibility. The author presents an adequate review of the literature and is familiar with the work of others. It is regrettable, however, that he did not include a bibliography.

Physiology of Man in the Desert. By E. F. Adolph and associates. Monographs in the Physiological Sciences. Cloth. Price, $6.50. Pp. 357, with illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, 1947.

This volume is a comprehensive report of the investigations done by the Rochester Desert Unit during the period from 1942 through 1945. Incidentally, it is also the first volume in the series entitled "Monographs in the Physiological Sciences" sponsored by an editorial board of distinguished physiologists. The studies were conducted in the Colorado desert in California and in the Desert Laboratory at the University of Rochester. In the course of the presentation the entire subject of heat regulation and water balance is outlined and discussed in a clear fashion. The material is well integrated in spite of the fact that the chapters were written by a number of different contributors. Sweat formation, dehydration and water requirements, thirst, circulation and blood changes during water deprivation are extensively considered. Many important practical conclusions are drawn; a complete list of specific instructions in regard to food, shelter, clothing and water are presented and their physiologic rationale is given. This book is remarkable for its correlation of practical and theoretic aspects of the subject; its contents should be of interest to the research scientist, the physician and the climatologist. These studies are a good example of the important basic physiologic knowledge that can come out of the solution of practical problems.

Der Myokardinfarkt: Erkennung, Behandlung und Verhütung. Von Professor Dr. Max Hochrein, Direktor der Medizinischen Universitätspoliklinik Leipzig, Leipzig. Band I, Kreislauf-Bucherei, herausgegeben in Verbindung mit der Deutschen Gesellschaft für Kreislaufforschung. Third edition. Paper. Pp. 387, with 82 illustrations. Theodor Steinkopff Verlagsbuchhandlung, Embaumstrasse 2, Frankfurt am Main-Griesheim, 1945.

This third edition summarizes the author's experiences and is based on over 700 personal cases of myocardial infarction. The reviewer has not seen the second edition, which appeared in 1941, but on comparing this edition with the first, it is apparent that the entire subject has been greatly expanded, this edition being double the size of the first. The book is taken up primarily with a consideration of the clinical aspects of this condition, the experimental background having been abbreviated as the author's own experimental experiences have dimmed and as his interest has become more and more clinical. This edition was written during the war with its inevitable handicaps. The literature is carried through to 1941, but the American and English publications which appeared during the war and which contributed greatly to the subject are not covered. This leads to obvious defects. The presentation of the electrocardiogram is inadequate and not commensurate with present standards in this country. It is hoped that when the fourth edition appears these defects will be remedied.

Deep Analysis: The Clinical Study of an Individual Case. By Charles Berg, M.D., D.P.M., Physician to the British Hospital for Functional Mental and Nervous Disorders, London. Cloth. Price, $3.50. Pp. 254. W. W. Norton & Co., Inc., 101 Fifth Ave., New York 3, 1947.

This book is a highly illuminating description of a complete psychoanalysis of a single case. The patient under analysis, who subsequently attained a position of national eminence in England, did not present himself with any especial symptoms but because of a deeply felt dissatisfaction with his own mode of life. However, Dr. Berg only too quickly during the course of the analysis was able to point out that under the cloak of normality this man concealed all the ingredients of every psychopathologic formation and mechanism including frigidity, impotence, hysteria, obsession and even paranoia and schizophrenia. The uncovering of these phenomena provided the author with an excellent opportunity to discuss lucidly these aberrations from a theoretic point of view. Many will disagree with the author on his method and some of the technics applied, but the analysis was handled in a masterly fashion. His theoretic discussion as well as the manner of the unfolding of the case will be instructive to every student of psychoanalysis. The nonpsychiatric physician will find the book fascinating.

Massage and Remedial Exercises in Medical and Surgical Conditions. By Noël M. Tidy. Seventh edition. Cloth. Price, $6. Pp. 480, with 190 illustrations. William Wood & Co., Mount Royal and Guilford Aves., Baltimore 2, 1947.

This book, written by a physical therapist for physical therapists in Great Britain, has had seven editions since 1932. Its well merited success is due to a broad and conservative presentation of the subject matter, which has grown to impressive proportions in successive editions. Each of the twenty-three chapters includes an adequate discussion of pathology, symptomatology and general medical treatment, followed by a full presentation of all forms of physical treatment. This is quite different from the run-of-the mill books on massage. Almost two hundred illustrations and a full index add to the usefulness of the volume, which has been serving as chief guide for the examinations of the Chartered Society of Masseurs and Medical Gymnasts. Physical therapists trained on the level of this book should become invaluable technical assistants indeed to the medical profession.

Endocrinologia sexual femenina. Par Carlos J. Calatroni, docente libre de clinica ginecológica, Buenos Aires, Vicente Ruiz, jefe del Serv. de ginecología del H. español, Buenos Aires, y Guillermo di Paola, docente libre de Clínica ginecológica, Buenos Aires. Prólogo del Profesor Dr. Bernardo A. Houssay. Cloth. Price, 68 pesos. Pp. 724, with illustrations. Libreria y Editorial "El Ateneo," Florida 340, Córdoba 2099, Buenos Aires, 1947.

This book is printed on enamel paper and many of the illustrations are reproduced in color. Luis Seoane's sixteen modernistic drawings are an unusual feature. Since endocrinology has revolutionized gynecology in the past twenty-five years, the aim of this book is to affirm fundamental principles of diagnosis and treatment. Dr. Houssay states in the prologue that the authors have had ample clinical and laboratory experience to enable them to give a clear, critical, up-to-date review of endocrine physiology, pathology and therapy in the female.

The authors believe that excessive brevity conspires against clarity of presentation. The book is divided into three sections. Part I is a description of the embryology, anatomy and physiology of the female in intrauterine life, childhood, adolescence, the period of sexual maturity and the menopause. The various somatic modifications are stressed. Three types of sexual cycles are outlined, namely, the diphasic, triphasic and monophasic. A chapter is devoted to anomalies of the diphasic cycle. This section of the book contains interesting clinical material and is well illustrated by photomicrographs, diagrams and photographs of patients. Treatment is given in detail, including tables of commercial drugs and their equivalents. Part II is concerned with the physiology of the hypophysis, the chorioplacental system, the suprarenals and the thyroid as they affect the female. Part III is devoted to the female sex hormones, i. e., gonadotropins, prolactin, estrogens and progesterone, with indications and contraindications for their use. There is an appendix of miscellaneous terse quotations and an index.

This book, because of its clarity of arrangement and illustrations, is easy to understand even though the potential reader may not be familiar with the Spanish language.

Fundamentals of Psychiatry. By Edward A. Strecker, M.D., Sc.D., LL.D., Professor of Psychiatry and Chairman of the Department, Undergraduate and Graduate Schools of Medicine, University of Pennsylvania, Philadelphia. Fourth edition. Cloth. Price, $4. Pp. 325, with 21 illustrations. J. B. Lippincott Co., 227-231 S. Sixth St., Philadelphia 5, 1947.

This is a small compendium describing, in easily understandable language, the basic fundamentals of psychiatry. The author emphasizes the relation between internal medicine and psychiatry, and for this reason this manual is good for students, general practitioners, nurses and psychiatric social service workers. This manual is a useful and accurate summary of psychiatry.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

SULFAMERAZINE

To the Editor:—I have reviewed the literature which has appeared in *The Journal* during the past four years on sulfamerazine. 1. Are the blood levels of sulfamerazine and sulfadiazine comparable, or does the fact that nearly twice as much sulfamerazine is bound to proteins mean that it is half as effective when comparing equal concentrations of the two drugs? 2. Does concentration of sulfamerazine in the spinal fluid equal 50 per cent or 80 per cent of the plasma concentration? 3. Should a urine alkalinizer be used with sulfamerazine? 4. What is the accepted dose in children? 5. What is the status of the drug as far as the other sulfonamide compounds are concerned?

M.D., Indiana.

Answer.—The whole blood levels of sulfamerazine and sulfadiazine are not strictly comparable for two reasons.

1. Sulfamerazine enters the red cells in low concentration (25 per cent), while sulfadiazine does so easily. Thus blood levels (determined by the usual whole blood method) indicating as much sulfamerazine as sulfadiazine represent plasma levels containing more of the former drug.

2. About twice as much sulfamerazine has been found under certain conditions to be bound to plasma proteins as sulfadiazine. However, the actual percentage of each drug bound is dependent on several factors: first, the most important being the actual concentration of the drug since the percentage bound decreases as the total concentration increases; second, the blood protein level itself is important in determining the degree of binding. As can be seen arithmetically, the actual percentage bound is important and this varies with the level being considered. Therefore, because of the several factors involved, it is difficult to state exactly the meaning of relative blood levels, except that it appears probable that higher whole blood concentrations of sulfamerazine than of sulfadiazine are needed to have equal therapeutic activity, since such activity has been shown to depend solely on the unbound drug.

The spinal fluid concentration of sulfamerazine in relation to its plasma concentration is again variable. However, in cases of meningitis the spinal fluid level is about 50 per cent of the whole blood level (somewhat under 50 per cent of the plasma level). In patients without meningeal inflammation the spinal fluid concentration is nearer 25 per cent of the whole blood concentration.

Attempt should be made to alkalinize the urine when using sulfamerazine. There is no one accepted dose in children, but the dose usually used is the same as for sulfadiazine—0.05 Gm. per pound per twenty-four hours.

Sulfamerazine is an alternate drug of choice to sulfadiazine. It is probably best used to try to avoid reactions when sulfadiazine has previously been administered. Because of poorer penetration into the spinal fluid, it may not be as effective in the treatment of meningitis. Sulfadiazine may be somewhat superior in infections with Klebsiella organisms and in bacillary dysentery.

GRAY HAIR IN CHILDREN

To the Editor:—What causes gray hair during adolescence? What are effective therapeutic agents in treatment?

T. D. Lee, M.D., Portland, Ore.

Answer.—Gray hair in young children and adolescents is uncommon. One patient developed iron gray hair at 5 years of age. He grew up, went through college, played football and engaged in other sports, but the iron gray hair persisted. Therapeutic agents of benefit are not known. The vitamin calcium pantothenate will change the color of hair in animals but it has no effect on man.

SMALLPOX VACCINATION

To the Editor:—Are there reports of congenital malformations or miscarriage attributable to smallpox vaccination during pregnancy? If the mother has not been previously immunized, is vaccination of the mother during the puerperium contraindicated?

Captain, M.C., U. S. Army.

Answer.—Congenital malformations or miscarriage apparently cannot be attributed justly to smallpox vaccination during pregnancy. There is no contraindication to vaccinating the mother during the puerperium, if she has been exposed to smallpox.

COLOMBIAN EPIDEMIC

To the Editor:—Please give me information on the diagnosis and treatment of an epidemic disease which prevails in a large territory of a rural zone of Colombia. This epidemic appeared in a group of villages which form one of the zones of coffee plantations about 50 kilometers from Cucuta city. The villages are about 1,500 meters above sea level. The villagers are frequently unclean and have body lice. Ticks abound. The houses are made of straw. The disease has attacked persons of every age and condition.

The first 4 cases were fatal within twenty-four hours. One case is followed by several in a family. The disease begins suddenly with chills followed by high fever, which remits slightly during the eight to fifteen days of its duration. Within six to twelve hours after the onset petechial spots appear on the feet, legs and arms, a few on the trunk and none on the face. The petechiae are dark in color with polycyclic borders and about 1 cm. in diameter. They may be abundant or scanty. There is a sensation of local burning. One of the patients presented the rash twice with an interval of four days.

Photophobia, conjunctival injection, typhus tongue, somnolence in some cases, moderate splenomegaly and serous effusion in the elbow and wrist joints, which spontaneously reabsorbs in a few days, also occur. Articular fluid is scanty, forearms are held in flexion and legs in extension. Moderate headache, vomiting, peribuccal herpes, congestion of the lungs and cough also occur. Arterial tension averages 110 mm. systolic and 60 to 70 mm. diastolic; the pulse rate is 120 a minute. Reflexes are exaggerated.

There are also polymorphonuclear leukocytosis, moderate eosinophilia, anemia, urobilinuria and negative Weil-Felix and Widal reactions. Subcutaneous inoculation with a sample of the liver, suspected of Rickettsia, in 2 guinea pigs produced no effect on the animals. Smears and cultures for Clostridium chauvoei and for hematozoic parasites gave negative results. Microscopic studies for Rickettsia were not carried out. The patients had 3 Gm. daily of para-aminobenzoic acid. Some patients had a moderate remission; in others the drug had no effect. The population has had vaccine for prevention of exanthematic typhus. Please suggest additional diagnostic methods.

Benjamin Rojas Pacheco, M.D., Cucuta, Colombia.

Answer.—The clinical symptoms of the patients and the epidemiologic information, plus the known existence of rickettsial diseases in Colombia, justify the suspicion of an epidemic of typhus in the Cucuta area.

However, the epidemiologic studies and clinical symptoms together with a negative Weil-Felix suggest meningococcemia caused by one of the four types or groups of meningococci, Neisseria intracellularis.

Extensive meningococcic epidemics with high fatality have been reported in some areas of South America. Fulminating cases with signs of collapse and shock from the onset are occasionally observed in meningococcic infections. The neurologic symptoms reported from Cucuta do not indicate extensive infection of the meninges, but deaths associated with severe adrenal hemorrhages have occurred within less than twenty-four hours in other places with little or no extension of infection to the meninges.

The disease most frequently attacks the young, but persons of any age or condition are susceptible. The onset is usually sudden with chills, high fever (often with remissions), headache, nausea, vomiting, meningeal irritation and frequently petechial cutaneous lesions which are variable in appearance and distribution. Peribuccal herpes are frequently observed. Ocular symptoms, including conjunctivitis, and involvement of the nose and throat, pharynx and lungs may occur. Lobar or bronchial pneumonia has been observed frequently as a complication in some outbreaks. The tongue may have the appearance seen in typhus. The spleen is usually enlarged in acute cases. Frequently there is constipation. Arthritis, some with serous or purulent exudation, has been reported to be the most frequent complication in some epidemics. Leukocytosis in most cases remains constant.

Positive microscopic and cultural examinations of the spinal fluid and blood will confirm the diagnosis. Cultures should be made of material from the nasopharynx of patients and suspected carriers.

Rickettsial complement fixation and agglutination reactions should be continued for confirmation or ruling out of the rickettsial diseases.

In order to investigate the possibility of other diseases, epidemiologic studies should be intensified, detailed recordings of clinical data should be continued and thorough blood examinations and other laboratory studies should be made.

INTOXICATION

To the Editor:—Will a person who takes concentrated alcoholic drinks become intoxicated sooner than one who takes diluted alcoholic drinks, assuming that the time interval and total alcoholic intake is the same?

M.D., Illinois

Answer.—When fairly large doses of alcohol are ingested, e. g., 55 cc. absolute alcohol, the maximum blood alcohol concentration occurs with a 30 per cent aqueous dilution of the ingested alcohol. Greater or lower concentrations of ingested alcohol cause lower maximum concentrations in the blood (Lolli.

G., and Rubin, M.: *Quart. J. Stud. on Alcohol* **4**:360, 1943). The intoxicating effect of alcohol increases with rising concentrations of the same amount of alcohol and then decreases with further concentration. The slower absorption of alcohol with higher concentrations is probably the result of damage to the gastric mucosa. Newman and Abramson (*ibid.* **3**:361, 1942) administered the same amount of alcohol as Scotch whisky and California port wine. The blood alcohol curve for the whisky showed a peak in one hour, but the peak from the wine was much lower and occurred in two hours. The intoxicating effect of the wine was correspondingly lower than that of the whisky. When sugar was added to the distilled liquor, there was no difference in the action of the whisky and the wine. The presence of food in the stomach and of buffers in the beverage are important factors in the intoxicating effects of alcohol.

PYODERMA OR "JUNGLE ROT"

To the Editor:—A man aged 30 contracted "jungle rot" of the hypothenar eminence of the palm. Treatment included antibiotics, salicylic acid, coal tar and mercurial antiseptics without relief. Finally it responded to a full dose of roentgen therapy two years ago. The same condition has now recurred in the same location and is spreading. What other therapeutic agents are suggested? Can the course of roentgen therapy be repeated?

M.D., New York.

Answer.—"Jungle rot" is not a clinical entity. It is a term used by the men in the armed services in the South Pacific for a number of cutaneous diseases, usually pyoderms. Most cases were irritant dermatitis or fungous disease which had become secondarily infected with pyogenic organisms. Ecthyma, diphtheritic lesions and traumatic ulcers were also part of the inclusive term, jungle rot.

The lesions on the palms might be ringworm, particularly the id type from a focus of dermatophytosis on the feet; psoriasis, either the dry or pustular type, or the entity known either as recalcitrant eruption or pustular bacterid. The latter is more likely to be strikingly symmetric on the thenar eminences and consists of pinhead-sized pustules in the epidermis which dry *in situ* to leave small brown scabs. Contact dermatitis, a fixed drug eruption or sensitization to a food might also account for the eruption.

Eczematoid ringworm is the disease most frequently encountered. Treatment depends a good deal on the character of the lesions. If they are vesicular, relief can be obtained from cool wet packs of aluminum subacetate in 0.5 per cent solution. If there are scaly patches, an ointment containing salicylic acid and benzoic acid in dilute form is usually effective. The ointment should be applied also to any focus of ringworm that is present in the toes, particularly in the interspaces. For eczematous patches, a preparation containing tar may be useful.

If topical measures fail to effect the desired improvement, it is likely that after an interval of two years more roentgen therapy would be useful. It is assumed, of course, that the skin shows no evidence of damage from roentgen rays.

VISUAL ACUITY

To the Editor:—A patient has vision of 10/100 in his right eye, which corrects to 20/40, and vision of 3/100 in his left eye, which corrects to 15/100. What is the percentage of loss of vision in his left eye?

He has a small scar over half of the pupil of his left eye, as a result of ulcer following injury by a foreign body: otherwise his eye seems perfectly normal. What test is recommended to determine malingering?

W. C. Behen, M.D., Lansing, Mich.

Answer.—Vision of 15/200 represents a loss of 63.4 per cent of visual efficiency for distance. Distant vision is, however, but one element in the determination of ocular efficiency. The amount of disability is computed by obtaining the product of efficiency value of central visual acuity (average of near and far), the field of vision and muscular function. A standard method for the appraisal of loss of visual efficiency was adopted by the Section on Ophthalmology in 1926 and modified in 1940 (*Tr. Sect. Ophth., A. M. A.,* 1941, pp. 329-337), but standards vary considerably from state to state.

No specific test may be recommended to expose simulated defective vision, and the examiner's patience and ingenuity may be extended to the utmost before the fraud is exposed. The tests depend in general on (1) varying the size of the visual angle subtended by the test letter and (2) determining the vision with both eyes of the patient open but with the patient using only the "poorer" eye, the vision of the opposite eye being suppressed by means of prisms, mirrors, polaroid disks, colored lenses and test letters, or instruments, several of which have been devised to uncover malingering. There is a good discussion of the tests and their application by M. A. Lasky (Simulated Blindness, *Arch. Ophth.* **25**: 1038, 1941).

VASECTOMY

To the Editor:—How long a period of time must elapse following vasectomy before the patient can be certain of being absolutely sterile? Should microscopic examination of the seminal fluid be done before assuring the patient that he is sterile?

Glenn T. Howard, M.D., Pearsall, Texas.

Answer.—Following vasectomy one month should elapse before a specimen of seminal fluid is examined for the presence of sperms. If sperms are found, the examination should be repeated in another thirty days. Obviously, the patient may not be assured of his sterility until the seminal fluid is free of sperms. Recanalization is unusual following a properly performed vasectomy, in which the cut ends of the vas are doubled back and tied. Interposition of the scrotal tissues is also desirable in preventing recanalization.

DR. RUSKIN'S THEORY AND TREATMENT

To the Editor:—One of my patients, whose disease has been diagnosed as ruptured intervertebral disk, has found his way to Dr. Simon L. Ruskin of New York. Dr. Ruskin has a novel form of treatment as outlined in an article, "The Control of Muscle Spasm and Arthritic Pain Through Sympathetic Block at the Nasal Ganglion and the use of the Adenylic Nucleotide; Contributions to Physiology of Muscle Metabolism," which appeared in the *American Journal of Digestive Diseases* (**13**: 311-320 Oct. 1946). There are numerous favorable case reports in the article Please inform me as to the efficacy of this form of therapy.

Sidney B. Meltz, Richmond Hill, N. Y.

Answer.—Ruskin's treatment is based on a rather complicated theory. He proposes that "the underlying biochemistry of contractile elements which would characterize all muscle spasm (of *both smooth and striated muscle) would tend to be the same.*" A "reflex neurogenic factor in muscle spasm" is also postulated. Ruskin sees a close relationship between such conditions as acute and chronic arthritic pain, hypertension, coronary artery spasm migraine, menstrual pains and ureterai colic, in all of which conditions his treatment presumably is indicated and is equally successful. Anesthetization of a sympathetic nerve center (the sphenopalatine ganglion) is said to be "followed by immediate generalized relaxation of muscle spasm, not only of smooth muscle such as the arterial tree but of striated skeletal and syncitial cardiac muscle."

According to Ruskin, he began these studies in 1924 and has treated patients "numbered in the thousands." Despite a quarter-century of such studies and the supposed "dramatic nature of the results," this and a companion paper appear to be his first reports on the treatment as applied to arthritis, and confirmatory work by others has not yet appeared. Fifty representative cases were reported in such meager detail that the reader cannot form independent opinion as to diagnosis. The clinical diagnoses were couched in such vague terms as "chronic arthritis," "rheumatic arthritis," "lumbosacral spasm (sacro-iliac)" and "muscle tonus disturbance." Roentgenographic reports were usually absent and roentgenographic illustrations or photographs of end results were not presented.

Success in treatment was claimed in about every case (except for 1 patient who later was found to have a protruded intervertebral disk), but the length of the follow-up time usually was much too short (sometimes as short as two weeks) for one to be able to express an opinion as to the final outcome.

The treatment combined three procedures: sympathetic block at the nasal ganglion, the intramuscular injection of ferrous adenylate into one buttock and calcium ascorbate into the other buttock. No control studies on the effect of any one of these procedures used alone were reported. The statement was simply made that "without spheno-palatine ganglion block neither the adenylate nor the calcium ascorbate relieved the spastic state."

ACTINOMYCOSIS

To the Editor:—In *The Journal,* Dec. 13, 1947 under Queries and Minor Notes, in answer to a question about the latest treatment for actinomycosis nothing is said of the use of thymol, which has apparently had good effect in the few cases where it has been given a fair trial. Please refer to "Thymol Therapy in Actinomycosis" by H. B. Myers, (*The Journal,* May 29, 1937, p. 1875) in which this pharmacologist details recoveries in 5 of 6 cases treated; also see "Pulmonary Actinomycosis. Recovery after Thymol Therapy" by Etter and Schumacher (*The Journal,* Sept. 9, 1939, p. 1023), in which perfect recovery ensued after adequate doses of thymol. As detailed in our report, extensive pulmonary lesions cleared completely as demonstrated by roentgen ray after the administration of 2 Gm. thymol by mouth daily for seventeen days. To my personal knowledge this man has remained well for eight years. He showed absolutely no response to massive doses of iodides and roentgen therapy. Because of the excellent results achieved by Myers and because of the spectacular recovery in our case it is my opinion that thymol should at least be mentioned as meriting a trial in such an otherwise almost hopeless condition.

Lewis E. Etter, M.D., Warrendale, Pa.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 136, No. 16 CHICAGO, ILLINOIS APRIL 17, 1948

COPYRIGHT, 1948, BY AMERICAN MEDICAL ASSOCIATION

CARDIOVASCULAR SYSTEM AS THE EFFECTOR ORGAN IN PSYCHOSOMATIC PHENOMENA

GEORGE BURCH, M.D.
and
THORPE RAY, M.D.
New Orleans

Bodily functions have been known for many years to be disturbed by emotional stress. These physiologic disturbances may be manifested as symptoms referable to any organ system; e. g., the gastrointestinal tract, the genitourinary tract and the respiratory and cardiovascular systems. For unknown reasons there is a tendency for one system to predominate in its disturbances. Many isolated observations of these reactions have been described. Beaumont[1] described interesting observations concerned with formation of gastric juice. Although most of Pavlov's studies were concerned with conditional reflexes, many were related to disturbed psychic states. Cannon[2] conducted objective studies of gastrointestinal disturbances produced by psychic changes. Wolff and Wolf and their associates[3] observed directly the effect of psychic disturbances on the vascularity of the mucosa of the stomach and changes in secretion in the stomach and duodenum associated with emotional upsets. The effect of emotional stress on respiration has been shown to produce a different spirographic respiratory pattern from that of the normal relaxed subject.[4] Sighing respiration is commonly observed during periods of emotional stress, and its importance in diagnosis has been previously emphasized.[5] Increased depth of respiration has been demonstrated during unpleasant thoughts.[6] Respiratory disturbances may be reflected in the cardiovascular system because of close physiologic relationships; e. g., the pronounced vasoconstriction following deep inspiration[7] or the influence of respiration on venous return. These indicate the complicated integrations of psychosomatic dysfunctions among organ systems.

The extreme susceptibility of the cardiovascular system to psychic disturbances is particularly well known. Every one is familiar with the development of tachycardia following emotional experiences, hypertension, pallor of the skin and syncope with fear angina pectoris with excitement and hypertension with prolonged anxiety. In fact, the cardiovascular system has been claimed to be "the most frequent seat of vegetative manifestation of neurosis."[8] Symptoms referable to the heart occur in almost all neuroses.[5b] The temporary cardiovascular reactions of blushing, sweating, paling, changes in temperature, and so forth, are better known than the more subtle and often sustained reactions to prolonged emotional stress. Studies on the cardiovascular output during periods of emotional stress reflect the effect of the central nervous system on the cardiovascular system. Anxiety causes a considerable increase in cardiac output.[9] The increase in cardiac output is out of proportion to the consumption of oxygen[10] and may be independent of changes in blood pressure. Studies of Hickam and Cargill[9b] revealed an increase in cardiac output in medical students before examinations of 50 per cent over the "composed" level. The greatest increase was 180 per cent. Anxious patients show an increase during the resting state. Recalling unpleasant life situations has been shown to produce changes in blood pressure, cardiac output and respiration which were as great as those produced by exercise. Anger, fear, resentment,

---

From the Department of Medicine, Tulane University School of Medicine, and the Charity Hospital, New Orleans.

Read before the Section on Internal Medicine at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

Aided by grants from the Life Insurance Medical Research Fund, War Department Contract No. W-49-007-MD-389 and Mrs. E. J. Caire Fund for Research in Heart Disease.

1. Beaumont, W.: Experiments and Observations on the Gastric Juice and the Physiology of Digestion, Plattsburgh, N. Y., F. P. Allen, 1833; Physiology of Digestion with Experiments on Gastric Juice, ed. 2, Burlington, C. Goodrich, 1847.

2. Cannon, W. B.: The Influence of Emotional States on the Functions of the Alimentary Canal, Am. J. M. Sc. **137**: 480, 1909.

Wolf, S.: Studies on a Subject with a Large in Function of the Stomach in Association with Tr. A. Am. Physicians **57**: *115, 1942.* Mittle- G.: Emotions and Gastroduodenal Function: Patients with Gastritis, Duodenitis and Peptic 1: 5, 1942. Richards, C. H.; Wolf, S., and Wolff, H. G.: The Measurement and Recording of Gastroduodenal Blood Flow in Man by Means of a Thermal Gradientometer, J. Clin. Investigation **21**: 551, 1942.

4. Christie, R. V.: Some Types of Respiration in Neuroses, Quart. J. Med. **4**: 427, 1935.

5. (*a*) White, P. D., and Hahn, R. G.: The Symptoms of Sighing in Cardiovascular Diagnosis, with Spirographic Observations, Am. J. M. Sc. **177**: 179, 1929. (*b*) Caughey, J. L., Jr.: Cardiovascular Neurosis: Review, Psychosom. Med. **1**: 311, 1939. (*c*) Wolf, G. A., Jr., and Wolff, H. G.: Studies on the Nature of Certain Symptoms Associated with Cardiovascular Disorders, ibid. **8**: 293, 1946.

6. Finesinger, J. E.: The Effect of Pleasant and Unpleasant Ideas on the Respiratory Pattern (Spirogram) in Psychoneurotic Patients, Am. J. Psychiat. **100**: 659, 1944.

7. Burch, G. E.; Cohn, A. E., and Neumann, C.: A Study by Quantitative Methods of the Spontaneous Variations in Volume of the Finger Tip, Toe Tip and Posterio-Superior Portion of the Pinna of Resting Normal White Adults, Am. J. Physiol. **136**: 433, 1942.

8. Weiss, S.: The Interaction Between Emotional States and the Cardiovascular System in Health and in Disease, in Contribution to the Medical Sciences in Honor of Dr. Emanuel Libman by His Pupils, Friends and Colleagues, New York, International Press, 1932, vol. 3, p. 1181.

9. (*a*) Wolf and Wolff.[5c] (*b*) Hickam, J. B., and Cargill, W. H.: Effect of Anxiety on the Cardiac Output, paper read at meeting of American Society for Clinical Investigation, 1947. (*c*) Stead, E. A., Jr.; Warren, J. V.; Merrill, A. J., and Brannon, E. S.: The Cardiac Output in Male Subjects as Measured by the Technique of Right Atrial Catheterization: Normal Values with Observations on the Effect of Anxiety and Tilting, J. Clin. Investigation **24**: 326, 1945. (*d*) Grollman, A.: The Cardiac Output of Man in Health and Disease, Springfield, Ill., Charles C Thomas, Publisher, 1932.

10. Wolf and Wolff.[5c] Stead, Warren, Merrill and Brannon.[9c]

frustration and depression produced a greater cardiac output, which remained elevated for a longer period of time than the usual response to a standard exercise test.[5c] Under emotional stress the efficiency of the cardiovascular system is definitely impaired; therefore sustained emotional stress is a burden on the cardiovascular system. Psychic trauma may act as the precipitating cause of heart failure.[11]

The occurrence of angina pectoris and then sudden cardiac death as a response to intense emotional stimuli is well known. A person may acquire a conditioned response to a life situation so that its reappearance or mere recollection results in angina pectoris. Furthermore, auricular fibrillation or flutter, premature contractions and paroxysmal tachycardia are frequent cardiac manifestations of anxiety states.[12] Palpitation dyspnea and precordial discomfort are among the most common cardiac complaints in psychic disturbances. The importance of neurocirculatory asthma in the Civil War, in World War I and to a lesser extent in World War II,[12a] is generally recognized. The electrocardiogram has been found[13] to change during psychic disturbances. These records are interesting and definite objective data indicating cardiac disturbances manifested particularly by change in the order of repolarization.

It is evident from the foregoing discussion that the somatic responses to psychic phenomena are well recognized. There are, however, several problems which deserve consideration. 1. Since psychic disturbances produce profound somatic reactions, often resulting in serious organic changes or even sudden death, the physician should routinely devote considerable attention to this problem in the proper management of his patient regardless of the disease state. 2. The existence of sustained anxiety states with prolonged somatic dysfunction with superimposed temporary but explosive psychic stress will result in serious organic disease. The importance and mechanisms of these phenomena are not well understood. There is a need to study these reactions in all organ systems. This is particularly important in the cardiovascular system, since its failure is the most common cause of death in man today, and it is becoming even more important as the life span increases. 3. The psychiatrist and psychologist are in great need of objective methods for approaching the problem of evaluating the mental processes. Because of the great reactivity of the cardiovascular system and especially the peripheral blood vessels to thought processes, the cardiovascular system is a good effector organ of psychic phenomena in both health and disease. In the past the approach has been mainly through the history and physical examination; and to a lesser extent through thermometric, electrocardiographic and ballistocardiographic and other studies on cardiac output. Some of these methods are cumbersome, impractical and often not informative. The extreme sensitivity and operative simplicity of the plethysmograph open a new approach to an understanding of the more subtle reactions. The accessibility and sensitivity of the vessels of the tips of the digits make such an approach practical, quantitative and objective. Reactions may be quantitated as to duration as well as degree. It is the purpose of this report to present studies of case histories and by use of a sensitive plethysmograph to demonstrate the potential as well as present value of plethysmography in man.

REPORTS OF CASES

The clinical data on 4 patients are presented first to illustrate certain facts related to psychosomatic phenomena concerning the cardiovascular system. Such problems as these are encountered frequently by all physicians.

Case 1.—J. C., a white man aged 44, entered the hospital complaining of a squeezing type of precordial pain which radiated into the left side of his neck and into the ulnar aspect of the left arm. The pain was not precipitated by exercise but occurred after a period of emotional excitement, particularly anger. The psychic disturbances resulting from worry about his ill wife and the problem of meeting the demands of his friends for new automobiles increased the ease with which the pain was produced. His family physician told him that he had angina pectoris. This was accepted fatalistically, thereby increasing his anxiety state and the episodes of pain. The entire physical examination and laboratory studies except the electrocardiogram (fig. 1) failed to reveal any abnormalities. He appeared apprehensive and rather anxious about his cardiac state. When he entered the heart station to record the electrocardiogram the extreme concern and anticipation of the nature of the results produced a typical anginal pain which lasted about ten minutes. The electrocardiogram (fig. 1 *A*) recorded during the period of pain showed changes in the S-T segment and the T wave, greatest in the V leads, typical of those observed in angina pectoris. Immediately after the pain disappeared another electrocardiogram was obtained which showed a reversion of the S-T segments and T waves to normal (fig. 1 *B*). The patient was then given an appointment to report to the laboratory for a plethysmographic study. The patient immediately began to experience some concern about the study. When dressing to come to the laboratory he became restless, irritable and anxious. He experienced episodes of mild anginal pain. By the time he entered the laboratory he was so disturbed psychically that he began to perspire freely and to show pallor and apprehension. He removed all of his clothing except his shorts and was allowed to remain alone. The

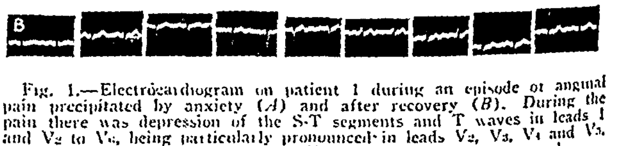


Fig. 1.—Electrocardiogram on patient 1 during an episode of anginal pain precipitated by anxiety (*A*) and after recovery (*B*). During the pain there was depression of the S-T segments and T waves in leads I and V_2 to V_6, being particularly pronounced in leads V_2, V_3, V_4 and V_5. After recovery from the pain the S-T segments returned to normal.

---

[11] Sodeman, W. A., and Burch, G. E.: Precipitating Causes of Congestive Heart Failure, Am. Heart J. **15**: 22, 1938.

[12] Friedman, M.: Studies Concerning Etiology and Pathogenesis of Neurocirculatory Asthenia: III. Cardiovascular Manifestations of Neurocirculatory Asthenia, Am. Heart J. **30**: 478, 1945.

[12a] White, P. D.; Cobb, S.; Chapman, W. P.; Cohen, M. E., and Badal, D. W.; *Observations on Neurocirculatory* Asthenia, Tr. Am. A. Physicians 58:129, 1944.

[13] Barker, P. S.; Shrader, E. L., and Ronzoni, E.: The Effects of Alkalosis and of Acidosis upon the Human Electrocardiogram, Am. Heart J. **17**: 169, 1939. Mainzer, F., and Krause, M.: The Influence of Fear on the Electrocardiogram, Brit. Heart J. **2**: 221, 1940. Loftus, T. A.; Gold, H., and Diethelm, O.: Cardiac Changes in the Presence of Intense Emotion, Am. J. Psychiat. **101**: 697, 1945. Master, A. M.: [illegible] culatory Asthenia *in the Navy*, U. S. Nav. [illegible] Merritt, W.: Inversion of the T Waves of [illegible] o Patients with Neurocirculatory Asthenia, [illegible] 4. Logue, R. B.; Hanson, J. F., and Knight, [illegible] Studies in Neurocirculatory Asthenia, Am. Heart J. **28**: 574, 1944. Graybiel, A., and White, P. D.: Inversion of T-Wave in Lead I or II of Electrocardiogram in Young Individuals with Neurocirculatory Asthenia, with Thyrotoxicosis in Relation to Certain Infe[illegible] xysmal Ventricular Tachycardia, ibid. **10**: 345, [illegible] The Influence of Autonomic Imbalance on the [illegible] I. Unstable T Waves in Precordial Leads from [illegible] sons Without Organic Heart Disease, ibid. **28**: 549, 1944.

observers were soon called back because the patient rushed into the hall suffering from a severe attack of angina pectoris associated with a syncopal syndrome. An electrocardiogram recorded during the pain revealed the changes in the S-T segment and the T wave previously observed which are typical of those encountered in angina pectoris. Glyceryl trinitrate (his first experience) relieved the pain, and another electrocardiogram recorded after the pain had fully disappeared was normal. The electrocardiographic changes were similar to those noted previously (fig. 1).

The relationship of the psychic disturbances to the episodes of angina pectoris and the possible mechanisms were presented clearly and carefully to the patient. He readily became certain of the associations and realized that it was imperative for him to change his reactions to his problems if he was to improve his health. Drugs were not prescribed, although he was advised to carry glyceryl trinitrate. For the two month period following the instructions he has not had another episode of angina pectoris and has not employed any glyceryl trinitrate, an experience for which he is exceedingly grateful. His electrocardiogram has remained normal.

Comment.—The experience of this patient definitely indicates the relationship of the psychic state to cardiac function. The angina pectoris syndrome with the typical electrocardiographic findings (fig. 1) are objective evidence of such relationships. It is obvious that a vicious cycle was in progress in which the number and severity of the attacks of pain were increasing and in turn were increasing his anxiety state, which in turn increased the episodes of angina pectoris, etc. Drugs certainly were not the means for interrupting the cycle; this could only be accomplished by proper measures directed at the psychic disturbances. Previous therapy with drugs failed, while psychotherapy resulted in dramatic improvement. There is no doubt that the patient is still experiencing some psychologic disturbances, but they have not been severe enough to produce pain. It is possible, however, that they are producing subtle cardiac dysfunction which might have some influence on his cardiac state in the future. It is obvious that such phenomena can occur, but unfortunately are difficult to study. From a practical clinical point of view it is preferable to manage the patient as though they are occurring and therefore must be avoided by careful psychiatric management. The extreme sensitivity of the peripheral blood vessels to psychic disturbances is shown in the plethysmograms in figures 2, 3, 4 and 5.

Case 2.—E. B., a white man aged 63, was examined because of pressing precordial pain with radiation down the left arm. The onset was four months prior to admission. He had previously had extramarital intercourse with a neighbor. He had no difficulty until his wife learned of this affair, and during the ensuing weeks the characteristic clinical picture of angina pectoris would develop each time the subject was mentioned by his wife. In addition, the sight of the extramarital partner or recalling his experiences would result in pain and typical electrocardiographic changes of depression of the S-T segment and inversion of the T wave during the attack. Between episodes the electrocardiogram was normal. His severance of relations with the neighbor as well as an understanding of the correlation of all factors and the psychosomatic mechanisms at work both in the patient and in his wife resulted in a disappearance of the angina pectoris. At present, discussion of his past experiences produces no anginal pain or measurable peripheral vascular response.

Comment.—The relationship of the angina pectoris to the psychic disturbances is evident. The patient had developed a conditioned response to his friend such that sight of her or a mere thought of the conflicts involved and his wife's reactions would precipitate pain. As in the preceding patient it was not drug therapy that was indicated but rather psychotherapy. After adequate discussions of the problems with him and his wife, the patient has not had another episode of angina pectoris. Both patients have shown considerable improvement in general physical and mental health, and are now happy.

Case 3.—T. L., a Negro man aged 54, was seen because of chronic ulcers on the tips of the fingers. He was well until one and one-half years before admission. Chronic ulcers developed on two of his finger tips which healed slowly. Six months before admission ulcers developed on several fingers. He was examined by a number of physicians and was informed that he had leprosy. The decision to enter a leprosarium for complete isolation resulted in much family turmoil, quitting a job, terminating a happy family life and a great deal of other unhappiness. He entered the leprosarium, where the diagnosis was not confirmed and he was promptly discharged. After spending three weeks in another hospital without a diagnosis, he became anxious and resentful. When first seen in consultation at Charity Hospital he was resentful to the point of being noncooperative. During the interview the classic digital syncope of Raynaud's disease developed in two finger tips. The remainder were cyanotic. The characteristic changes in color followed. These reactions were discussed with the patient. He became considerably relieved to have a definite diagnosis finally established. The second interview was much less disturbing, and his attitude was one of cooperation. When the diagnosis of leprosy was mentioned, however, digital arterial spasm occurred and the resultant digital syncope appeared instantly. The typical changes in color followed. After the normal color had returned the diagnosis of leprosy was mentioned again with almost instantaneous digital syncope and the reappearance of the entire syndrome. During the succeeding two weeks he was seen on several occasions and every time that reference was made to the diagnosis of leprosy classic digital syncope followed immediately. The mention of any event or person associated with the previous diagnosis resulted in digital syncope.

The subject had been a successful Pullman porter for thirty years, but the increasing demands of patrons resulted in extreme resentment. Discussion of impatient and demanding patrons resulted in digital syncope.

Comment.—The relationship between emotional disturbances and peripheral "angina" is obvious in this subject. He demonstrated a conditioned response to his past experiences about leprosy so that reference to the disease, physicians or hospitals associated with that experience resulted in spasm of the digital arteries. The nature of the illness and the psychosomatic mechanisms at work have been explained to the patient. On subsequent visits there was progressively less reaction to discussions related to his past experiences. His progress on psychotherapy alone has been satisfactory and his entire outlook has changed.

Case 4.—R. S. H., a white male medical student aged 22, was seen because of short paroxysms of extreme hypertension. The presence of hypertension was noted on routine examination. Later the blood pressure was normal on repeated examinations. He once noticed that thinking of sexual intercourse would result in an elevation of the systolic blood pressure to 200 mm. or more. Within a period of a few minutes the blood pressure would fall to within normal limits. The subject learned that he could elevate his blood pressure voluntarily by thinking of sexual intercourse and tensing the muscles of the perineum.

Plethysmographic studies were obtained while the patient was given the Rorschach test (fig. 2 *C*). Throughout the test his blood pressure was elevated slightly and his pulse and alpha deflections were small, indicating vasoconstriction. He relaxed after this period and his blood pressure and pulse and alpha deflections returned to normal. He was asked to elevate his blood pressure again. Within a period of one minute his blood pressure rose from a normal level to 250 systolic and 150 diastolic. The pulse deflections were small and the alpha deflections practically disappeared, indicating pronounced vasoconstriction. His expression became apprehensive; his pupils dilated and a severe bitemporal headache occurred. Within a short time the blood pressure returned to normal. The observation was interrupted by the subject's having to urinate, although the bladder was emptied one hour earlier. After the hypertension there was a large quantity of almost colorless urine of low specific gravity, whereas one hour earlier the urine was a normal amber color.

Comment.—The observations in this case further indicate the relationship of the mental processes to the state of the blood vessels. By an erotic thought the subject could purposely elevate his blood pressure. The extreme vasoconstriction is indicated by the small pulse and alpha deflections and the degree of hypertension. It is interesting that the process of relaxation was also under voluntary control, although a slightly longer time was required for the blood pressure to return to the resting level. The vasoconstrictor response was immediate and consistent. The effect on the kidneys was striking. The large volume of hyposthenuric urine is attributable to the increase in filtration pressure, probably due in part to constriction of the efferent arterioles of the glomeruli. The dilatation of the pupils indicates a diffuse sympathetic stimulation. Repeated reactions of this magnitude may be expected to result in organic vascular disease.

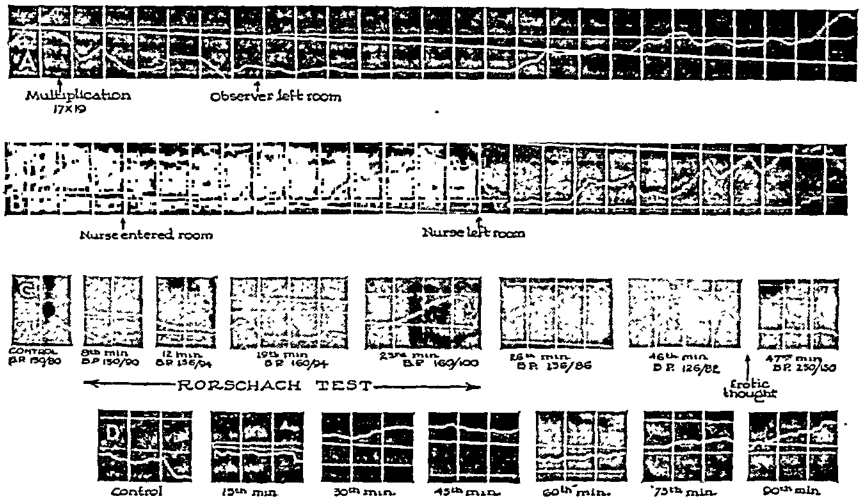


Fig. 2.—Plethysmograms obtained from the tip of the index finger of several subjects. *A*, prolonged vasoconstriction following a problem in multiplication by a normal subject. The pulse and alpha deflections are small indicating pronounced vasoconstriction. *B*, reaction to the entrance of a nurse into the normal subject's room. Both entrance and departure of the nurse resulted in vasoconstriction. *C*, plethysmogram on patient 4, who was able to produce decided hypertension voluntarily by an erotic thought. The control tracing shows normal pulse and alpha deflections. During the Rorschach test there is obvious vasoconstriction, the pulse and alpha deflections being small. The twenty-sixth and forty-sixth minutes demonstrate normal pulse and alpha deflections. The last plethysmogram recorded during the intentionally produced hypertension shows pronounced vasoconstriction. *D*, plethysmograms on patient 1, who had an episode of angina pectoris precipitated by an anxiety state. Plethysmograms taken at fifteen minute intervals show vasoconstriction throughout the entire period of observation. At no time during the study did the subject become relaxed. The patient had anginal pain during the early portion of the observation.

PLETHYSMOGRAPHY

During the course of plethysmographic studies on normal subjects and patients with various types of cardiovascular disease states, it became evident that the peripheral blood vessels are easily influenced by psychic disturbances. The development of a practical type of plethysmograph[14] has made it possible for others to search these problems. Psychosomatic studies directed at the peripheral blood vessels are important because of the possible relationship to disease states related to the cardiovascular system as well as to the psyche. Furthermore, it will be shown that plethysmography offers an objective approach to many problems in psychology and psychiatry.

The relationship of changes in the volume of the vascular bed to variations in the psychic state is not a new observation. It is only necessary to recollect the cardiovascular reactions associated with syncope produced by fear, a phenomenon as old as man himself. The studies of Burton,[15] Goetz,[16] Hertzman and Dillon,[17] Neuman and others,[18] Gottschalk,[19] Burch and coworkers[20] and others have shown the relationship of the behavior of the peripheral blood vessels to psychic function. It has been suggested[21] that a correlation of the five types of volume deflections (pulse, respiratory, alpha, beta and gamma) of the peripheral blood vessels may serve as an index of emotional states and types of personality. The exact patterns of the volume deflections related to the psychic states have been only partially observed.

It is well to remember that the peripheral blood vessels offer something somewhat unique in the approach to psychosomatic problems: (1) the peripheral vessels are extremely sensitive to mental processes of the conscious and subconscious levels; (2) they are readily accessible and (3) a sensitive and quantitative method (the plethysmograph) makes it practical to observe small and sudden vascular reactions. The peripheral blood vessels can serve as a useful tool as effector organs in psychosomatic phenomena.

---

[14] Burch, G. E.: A New Sensitive Portable Plethysmograph, Am. Heart J. **33:** 48, 1947.

[15] Burton, A. C.: The Range and Variability of the Blood Flow in the Human Fingers and the Vasomotor Regulation of Body Temperature, Am. J. Physiol. **127:** 437, 1939.

[16] Goetz, R.: Rate and Control of Blood Flow Through Skin of Lower Extremities, Am. Heart J. **31:** 146, 1946.

[17] Hertzman, A. B., and Dillon, J. B.: Selective Vascular Reaction Patterns in the Nasal Septum and Skin of the Extremities and Head, Am. J. Physiol. **127:** 671, 1939.

[18] (*a*) Neumann, C.; Lhamon, W. T., and Cohn, A. E.: A Study of Factors (Emotional) Responsible for Changes in the Pattern of Spontaneous Rhythmic Fluctuations in the Volume of the Vascular Bed of the Finger Tip, J. Clin. Investigation **23:** 1, 1944. (*b*) Neumann, C.; Cohn, A. E., and Burch, G. E.: A Study of the Influence of the Character of an Examining Room on the Peripheral Blood Vessels of Normal, Hypertensive, and Senile Subjects, J. Clin. Investigation **21:** 651, 1942.

[19] Gottschalk, L. A.: A Study of Conditioned Vasomotor Responses in Ten Human Subjects, Psychosom. Med. **8:** 16, 1946.

[20] Footnote 7. Burch, G. E.; Cohn, A. E., and Neumann, C.: Reactivity of Intact Blood Vessels of the Fingers and Toes to Sensory Stimuli in Normal Resting Adults, in Patients with Hypertension, and in Senile Subjects, J. Clin. Investigation **21:** 655, 1942.

[21] Burch, Cohn and Neumann.[7] Neumann, Lhamon and Cohn.[18a]

To illustrate the psychosomatic relationships of the peripheral blood vessels and psychic processes certain plethysmograms were recorded. Subjects were made to rest in bed in an air-conditioned room (not necessary for all types of studies, however), with temperature and relative humidity approximately 78 F. and 50 per cent, and plethysmographic recordings of the changes in vascular volume of the tips of the index finger and/or second toe were made as previously described.[11] The observation room was especially designed to reduce psychic disturbances to a minimum.[18b] The subjects studied were young men and women (medical students) who were normal or patients with known abnormal psychiatric states, usually anxiety neurosis. During the course of the recording of the plethysmograms psychic disturbances were produced by various methods, including entrance into the room, frowning at the subject, questioning the subject, dropping a book in an adjacent room, buzzing a buzzer, loud talking, multiplication of numbers, etc.

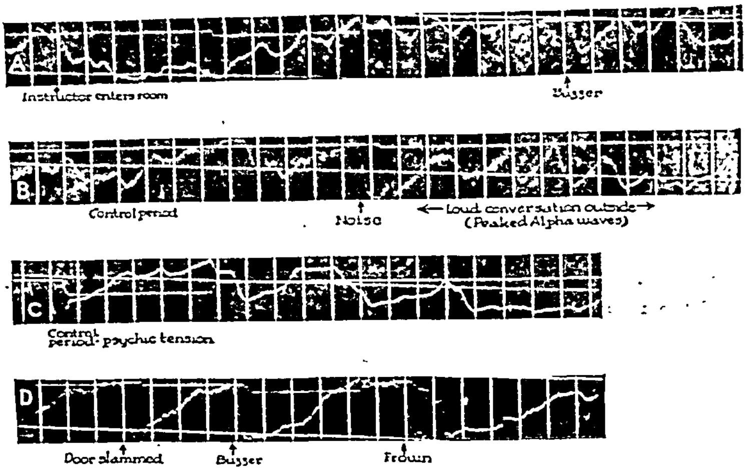


Fig 3.—Plethysmograms obtained from the tip of the index finger of normal subjects. *A*, reaction to the subject's instructor entering the room with resultant small pulse and alpha deflections indicating vasoconstriction. The peaked alpha deflections which followed suggest incomplete relaxation. The sound of a buzzer in the observation room produced vasoconstriction again. *B*, normal alpha waves during the control period followed by vasoconstriction in response to a noise in the adjacent room. Again, the high peaked alpha waves indicate incomplete relaxation, probably related to loud conversations outside. *C*, plethysmogram of a subject who was anxious at the onset of the observations. The pulse and alpha deflections are small throughout the record, indicating vasoconstriction. *D*, the same subject as *C*, fifteen minutes later. The pulse deflections in the first portion of the record are of normal size and indicate that a state of relaxation had been reached. Noises (door slammed across the hall and buzzer) resulted in vasoconstriction again with immediate return to the resting stage. When the observer frowned at the subject the reaction was more intense (smaller pulse and alpha deflections) and more prolonged.

All test stimuli evoked demonstrable reactions; i. e., reduction in the volume of pulse deflections and in total volume of the part. In addition, there were changes in the alpha deflections. They became smaller, more irregular and exhibited a more rapid rate of change than in a normal relaxed subject (fig. 3*B*).

Other determinants of the degree of the reaction are the nature and intensity of the stimuli. For example, informing a student that he has failed an examination produces a greater and more prolonged reaction than the pain of a pin prick. The degree of reaction can be measured in terms of the percentage change in the volume of the vascular bed and the duration of these changes.

Many patients have been observed who did not achieve relaxation (that is, they were in a state of psychic tension) during the entire period of observation (figs. 2*D* and 3*C*). As would be expected, the degree of reaction occurring in a person with preexisting vasoconstriction is less than that which occurs in a subject with vasodilatation before application of the stimulus (figs. 4*C* and 4*D*).

Furthermore, the failure of a person to become mentally at ease under conditions conducive to a state of relaxation of the peripheral blood vessels becomes recognizable through the medium of the plethysmogram in that the volume of the pulse and alpha deflections remains small and the character altered. An example of this is illustrated by figure 2*D*, which shows small alpha and pulse deflections throughout an entire period of observation of approximately two hours. Subjects who have been placed in a state of mental unrest by certain psychic influences to which they are rather sensitive will show a prolonged reduction in volume of alpha and pulse deflections. An example of this is shown in figures 3*A* and 4*A*, in which a student's instructor remained in the observation room. During this time the peripheral blood vessels reflected his psychic disturbances. After the instructor left the room the subject soon became mentally at ease and his pulse and alpha waves returned to normal volume and character (figs. 3*A* and 4*A*). These vascular reactions to mental unrest are further demonstrated by the fact that the mental processes concerned with simple multiplication resulted in a considerable and sustained decrease in the volume of alpha and pulse deflections (figs. 2*A* and 5*A*). These deflections did not return to normal until the process of multiplication had been completed. However, they again suddenly reduced in volume when the subject was seized with the idea that he had made an error in the calculations. When reassured of the accuracy of the multiplication, relaxation of the blood vessels followed (fig. 5*A*).

A self-induced psychic disturbance with pronounced vasoconstriction and hypertension was produced by one subject. This resulted in tachycardia, elevation of blood pressure to 250 systolic and 150 diastolic, marked diuresis and hyposthenuria and an intense bitemporal pain. These changes were brought about by an erotic thought. The plethysmogram was characterized by a considerable reduction in the volume of peripheral vessels of the finger and toe tips with the associated reduction of the pulse and alpha deflections (fig. 2C). These reactions were transient, being produced when the thought was brought to conscious levels and disappearing when the thought was dismissed.

The rapid and acute peripheral vascular reactions to minor stimuli were produced in a number of subjects. These are summarized in figures 2, 3, 4 and 5. It can be seen that there was a rapid emptying of the blood vessels of the fingers and toes evidenced by a decrease in total volume of the part as well as in the volume of pulse and alpha deflections when the stimuli were applied. For example, such stimuli as a noise, frowning at the subject by the observer and a pin prick resulted in demonstrable vascular responses.

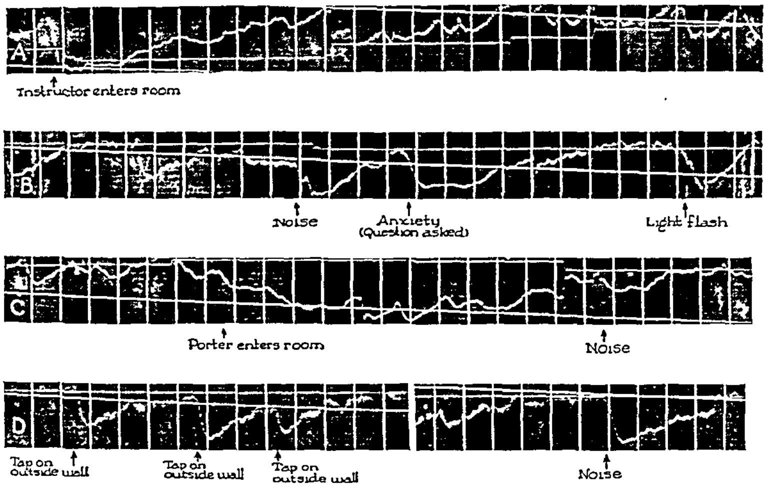


Fig. 4.--Plethysmograms obtained from tips of the incex finger and second toe *(C)* of normal subjects. *A*, decided reaction to the subject's instructor entering the room. The pulse and alpha deflections are small. The high peaked alpha waves in the last portion of the record indicate failure to return to the degree of relaxation present initially. *B*, reaction to noise, anxiety and light flash. The anxiety was a result of referring to an examination which the subject had recently taken. The vasoconstriction produced by the anxiety was of longer duration than the response to noise or light. *C*, plethysmogram obtained from the tip of the second toe of the subject in *B*. The first portion of the record shows normal pulse and alpha deflections. A porter's entrance into the room resulted in vasoconstriction and small pulse and alpha deflections. This reaction continued throughout the record. When a second stimulus (noise) was applied to a person already in a state of vasoconstriction little further reaction occurred. *D*, reactions to the same stimulus repeated at frequent intervals in subject of *B* and *C*. There was less reaction to the last stimulus, a sort of " tachyphylaxis." The reaction to noise by the same subject when the vessels were relaxed resulted in pronounced vasoconstriction.

GENERAL COMMENT

From the foregoing considerations, it is obvious that the cardiovascular system is responsive to psychic stimuli. This is true for both the central and the peripheral portions. In the past, these reactions have been followed by relatively limited methods; namely, the electrocardiograph, determination of blood pressure and general clinical observations. The plethysmograph increases our armamentarium. From the plethysmographic studies presented it becomes evident that the peripheral blood vessels of man are in a constant state of turmoil produced by the many variable environmental stimuli. For example, such simple disturbances as the entrance of a person into a subject's room will produce vasoconstriction. It then becomes a problem of differentiating the aspects of those reactions which are of fundamental nature in maintaining physiologic health from those which produce subtle but repeated wear and tear ultimately resulting in cardiovascular abnormalities.

From the point of view of the psychiatrist, these peripheral vascular reactions observed plethysmographically can serve as an objective and quantitative index of certain psychiatric and psychologic states. As mentioned previously there is a need for objective methods of following mental processes. The peripheral blood vessels serve as a sensitive effector organ, and a sensitive plethysmograph[14] as a simple and practical apparatus for recording these reactions.

It is evident from the case histories described that in the clinical management of a patient, particularly the patient with cardiovascular disease, it is imperative that the physician devote considerable time to an analysis of psychiatric problems. In many instances it will be found that it is psychotherapy rather than drug therapy which will produce desired clinical results. To neglect psychotherapy and employ drug or surgical therapy would result in therapeutic failure. Even though psychiatric analysis is time consuming, the rewards in therapeutic results justify a careful study. It is impossible to overemphasize the role of anxiety states and other psychiatric problems in the management of the patient with cardiovascular abnormalities.

SUMMARY

The cardiovascular system is particularly susceptible to psychic disturbances and it is the most commonly involved effector organ.

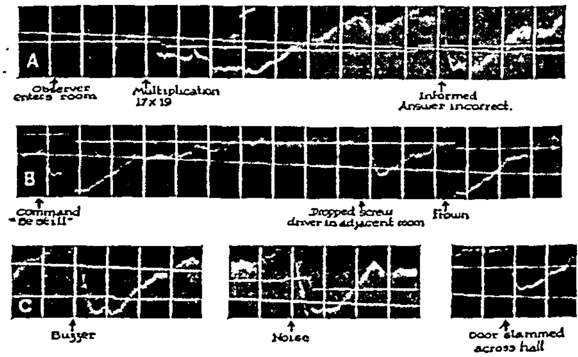


Fig. 5.—Plethysmograms obtained from tip of index finger in 3 normal subjects. *A*, the reaction to an observer entering room was slight. Considerable vasoconstriction resulted from a problem in multiplication. After the problem was completed, relaxation followed. When the subject was informed that the answer was incorrect an immediate vasoconstriction recurred. *B*, vasoconstriction resulted from a gruff command, "Be still!" *The reaction to a frown was approximately of the same* duration and intensity. The response to noise was short and not so great. *C*, vasoconstriction produced in 3 subjects by different stimuli.

The central (cardiac) effects are numerous and include (1) increased cardiac output, (2) mechanistic disturbances, (3) electrocardiographic changes, (4) angina pectoris and (5) even sudden death.

The peripheral vascular system is extremely responsive to the thought processes and emotional stimuli, and this portion of the cardiovascular system is readily accessible for qualitative and quantitative study.

A simple, accurate and quantitative method for study of the more subtle reactions has been described. The degree and duration of the vascular responses reflect the intensity of the emotional stimuli. Tense, unrelaxed subjects may be identified by the character of their plethysmogram. The potentialities of the plethysmograph in psychiatric evaluation are great. Its application as a new avenue of objective approach in psychiatry deserves further investigation.

Four case histories have been presented to illustrate the pronounced effect which disturbances in the psyche exert on the cardiovascular system. The need of psychiatric evaluation and the use of psychotherapy in the proper management of cardiovascular problems has been emphasized.

ABSTRACT OF DISCUSSION

Dr. George A. Wolf Jr., New York: I can add nothing to what has been observed, but I would like to speculate a little on the possibilities of such a method. It illustrates nicely that when we consider our patients to be in the basal state, during cardiovascular experiments with people walking in and out of the room and lights going on and off, they are not truly in the basal state, as far as their reactibility is concerned. One aspect of this problem is the reactibility of the same person at different times and the reactibility of different persons. In this regard what is the relationship of hypertensive to normal persons, early in their lives prior to the development of hypertensive disease, when hypertension becomes moderately developed and, later when they have advanced hypertension with outright vascular disease? A group of workers at the Rockefeller Institute have pursued this question. Would this method be of any value in deciding whether there is a real difference in the reactibility of peripheral blood vessels in these various phases of hypertension? As far as the psychologic phenomena are concerned, it would be of interest to determine whether a specific emotional state could be correlated with the reactibility of the blood vessels and the degree of reaction, inasmuch as the method described is a quantitative one. These are some of the things which might be pursued by this instrument. As Dr. Burch pointed out, a way to make progress in this field is to explore the physiology of so-called emotional states with every instrument available and attempt to associate the physiologic changes with the emotions.

Dr. Mandel E. Cohen, Boston: Little could be added to the description of the plethysmograph and the observations on it. Dr. Burch has conquered most of the difficulties in accuracy that have gone with this type of recording, with this new apparatus. This leaves us free to discuss the problem of the stimulus in this type of study and the general problem of drawing conclusions from this type of experiment. It is important to examine the general aspects, since many unproved assertions and broad generalizations are found in the medical field now called by some psychosomatic medicine. In studying the effect of an emotion-provoking stimulus on a measurement of physiologic function, it is important to ask whether the emotion-provoking stimulus is specific and crucial. But does any stimulus such as change of posture or slamming the door cause the same response? If talk stimulus causes the response, does any talk do it or must some special talk such as about special problems do it? For instance, we heard a report of a patient's changes in blood pressure associated with special problems about the patient, but in that report the author had neglected to say what happened if one just talked about anything. It is good to use plain language and not pretentious psychologic talk. Finally, we must be careful about conclusions. If we attempted to say that emotions cause hypertension because they cause blood pressure to go up—well, putting the hand in ice water also causes the blood pressure to go up, and it would be just as plausible to say that ice water causes hypertension. If experiments are so difficult to draw conclusions from, how much harder is it to interpret a patient's history to connect emotion-provoking situations with symptoms of disease? We must know whether the reported experience is accurate. Did it relate in time to the symptom? Did the experience cause the disease, or was it merely one of many factors that may have provoked symptoms? Or did the disease itself lead to the emotional disturbance? This aspect of medicine is still a mass of unproved assertions. Our attitude toward work in this field should be the same as in other parts of medicine. We should not neglect the possibilities, nor should we be gullible, to accept without adequate evidence, sufficient cases or adequate controls speculations and conclusions related to the reaction or emotion-provoking stimuli to disease. Even if the magical word "psychosomatic" beckons us, we can still demand cold facts before accepting the conclusions.

Dr. George E. Burch, New Orleans: As stated, this was not an organized attempt to solve the characteristic plethysmographic patterns that might be specific for any one type of psychic disturbance. We have always been impressed by the ease with which these vascular reactions occur after some of the minor, ordinary and everyday psychic experiences. We feel that the problem of plethysmography is essentially where electrocardiography was about 1900. There are many vascular patterns which have not been described. There is a great opportunity for the psychiatrist to approach many of his problems through the peripheral blood vessels as organs reflecting psychosomatic phenomena.

MANAGEMENT OF PROTEIN DEFICIENCY IN SURGICAL PATIENTS

Intravenous and Intrajejunal Injections

JOHN D. STEWART, M.D.
HARRY W. HALE Jr., M.D.
and
SIDNEY M. SCHAER, M.D.
Buffalo

Though protein nutrition is important in any field of medicine it is of special concern to the surgeon. The surgeon is often charged with the care of a depleted patient who must undergo a major surgical procedure as part of his treatment. In many instances obstructing or inflammatory lesions of the gastrointestinal tract preclude adequate oral alimentation. Superimposed on an accumulated nitrogen deficit may be losses of protein through draining wounds and sinuses, into areas of inflammation and into traumatized tissues, and losses from hemorrhage; the "reaction of injury" involving an ill understood increase in the rate of protein catabolism often inevitably complicates the problem for the surgeon. Furthermore, the hazards of protein deficiency during convalescence from surgical operation have come into clearer recognition as the subject has received closer study.

Despite the fundamental contributions of numerous investigators of protein metabolism and the adaptation of basic facts to clinical problems, various questions remain unanswered. For example, the possible increase in the need of specific amino acids or amino acid mixtures as occasioned by specific diseases is an obvious question which might repay study by qualified investigators. The present paper is concerned with some of the more practical aspects of protein nutrition in surgical patients. For the patient who cannot eat and who needs

---

From the Department of Surgery, University of Buffalo Medical School, and the Edward J. Meyer Memorial Hospital.

Read before the Section on Surgery, General and Abdominal, at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

six months as the sole source of food, and weight and sense of well-being were maintained. For many of our patients intravenous and intrajejunal alimentation are used concurrently.

A satisfactory mixture for intrajejunal feeding must fulfil certain requirements, and in our judgment these may be set down as follows:

1. The mixture should be complete and should supply in adequate amount the elements of the normal diet.
2. It should be fluid enough to drip by gravity through a small catheter (no. 16 F.) without undue sedimentation.
3. It should be neutral in reaction or approximately so.
4. It should contain enough colloid to protect the intestinal mucosa against irritant "salt action."
5. It should be inexpensive and easily prepared.
6. It should be capable of being varied to meet individual needs.
7. It should yield a low residue during digestion and absorption.
8. It should be easily digested and absorbed.
9. It should keep at least forty-eight hours in the refrigerator.

A formula which meets these criteria reasonably well and which we have used for the last six years is detailed in table 3.

TABLE 3.—*Formula for Intrajejunal Feeding*

		Salt Mixture	
Water	2,000 cc.		
Sucrose	300 Gm.		
Casein	200 Gm.	$CaCO_3$	20.0
Dried yeast	30 Gm.	$NaH_2PO_4 \cdot H_2O$	16.0
Trypsin	5 Gm.	KCl	28.0
Vitamin C	100 mg.	$MgCO_3$	6.0
Halibut liver oil	1 Gm.	Na_2CO_3	6.0
Vitamin K	4 mg.	FeAmm. citrate	6.0
Salt mixture	10 Gm.	NaCl	18.0

In the preparation of the mixture the casein is added slowly to the water while being brought into even solution with the help of a mechanical mixer. The casein is obtained in 25 (9 Kg.) or 50 pound (22 Kg.) lots, with a considerable saving in cost. The fat, and hence the caloric value, of the mixture can easily be increased by the addition of olive oil, cream or corn oil as indicated.

Chemical analysis of this mixture gives the following results:

Average total weight	2,543 Gm.
Average total volume	2,395 cc.
Percentage of moisture by weight	78
Percentage of solids by weight	22
Percentage of dry ash by weight	0.75
Specific gravity	1.068
Total protein content (nitrogen × 6.25)	196.5 Gm.
Total chloride content	3.9 Gm.
Total sodium content	
determined directly on sample	4.1 Gm.
determined on ash	4.1 Gm.
Total calcium content determined on ash	1.1 Gm.
Total phosphorus content determined on ash	4.7 Gm.
Total potassium content determined on ash	1.9 Gm.
pH (fresh and after four days at 4 C.)	6.2
Total fat content (ether 1-petroleum ether 1)	5.08 Gm.

This mixture is given each day by gravity drip, preferably continuously over a twelve hour period. If the patient is ambulatory the administration can be carried out during the night without disturbance of his sleep. If the solution is injected intermittently care must be used not to instil too much at one time, since distention of the jejunal loop, nausea or cramps and diarrhea may occur. Three or 4 ounces (90 or 120 Gm.) instilled into the jejunostomy catheter every half hour during the day may be employed, and in many instances the patient learns to do this himself, with a consequent saving in nursing time. Continuous administration of the formula by gravity drip during the night is the method to be preferred, as the patient is thus freed for studies or for ambulation during the day. Occasionally the feedings provoke diarrhea, in which event temporary suspension of the method or reduction in the amount administered together with injection of paregoric into the jejunostomy gives relief. In other instances the mixture is found to be constipating.

Our experience with intrajejunal alimentation has included observance of cases of esophageal carcinoma treated later by resection, and particularly of cases of carcinoma of the stomach in which there was involvement of the cardiac end. Patients with pyloric obstruction due to carcinoma or ulcer and patients with obstructing or bleeding duodenal ulcer have at times been prepared for definitive gastric resection by intrajejunal feeding. The jejunostomy opening may be closed from within at the time of gastric resection if technical considerations so indicate and if the patient's need for such feeding has been relieved. In cases of pyloric or duodenal obstruction we do not advise reinjection into the jejunostomy opening of aspirated gastric secretions, as such fluid may be laden with bacteria and its volume interferes with the intrajejunal administration of the more nutritious formula.

In cases of obstructive jaundice and hepatic damage there is reason to believe that the high protein, low fat mixture described may be beneficial, and clinical experience with such cases confirms the belief. The method has been used chiefly for feeding during convalescence after pancreaticoduodenectomy, the jejunostomy having been done at the time of the definitive operation. It is undoubtedly desirable to have the patient take such a dietary mixture before as well as after pancreaticoduodenectomy, and this can be accomplished by feeding by drip through an inlying nasogastric tube before operation. It has seemed to us technically undesirable to complicate the problem of resection of the head of the pancreas and duodenum by a previously performed jejunostomy. There is a place for this method in cases of complicated stricture of the common duct with recurring cholangitis and hepatic damage,[4] and the usefulness of intrajejunal feeding in patients with malfunctioning gastroenterostomy stomas—fortunately a less common problem nowadays—has been pointed out.[5] The occasional case of postoperative duodenal fistula likewise may constitute an indication for intrajejunal feeding.

In conclusion it may be stated that:

(1) in the practical matter of meeting protein needs of surgical patients intravenous infusions of amino acid mixtures with dextrose and intrajejunal injection of a more complete dietary mixture are safe and effective and (2) such therapy is important before as well as after operation and it is frequently essential for the success of major surgical procedures.

ABSTRACT OF DISCUSSION

DR. I. S. RAVDIN, Philadelphia: More work of the type which Dr. Stewart and his group are doing is necessary before the best mixtures for oral or parenteral use can be available. It is highly likely that under varying needs a single solution will not adequately answer all the requirements to an optimal degree. Most of the nutritional deficiencies in man are complex deficiencies.

---

[4] Stewart, J. D.: Gravity Feeding by Jejunostomy, Ann. Surg. 96: 225, 1932.

[5] Allen, A. W., and Welch, C. E.: Jejunostomy for Relief of Malfunctioning Gastroenterostomy Stoma, Surgery 9: 163, 1941.

involving more than a single dietary component. In correcting a nutritional deficiency by any route, it is important to provide not only a balanced ration but also sufficient calories. We have talked too freely about the essential amino acids. It has been shown by Rose that they are essential for the growth of the rat and that when given in adequate amounts to man as the sole source of exogenous protein along with other dietary components a positive nitrogen balance can be achieved. Under certain conditions of disease or injury, when endogenous protein metabolism is disturbed, the problem is probably not so simple. While intravenous injections are often necessary as the sole source of dietary intake, it should be remembered that when the oral, orogastric or jejunal method of feeding can be used it is extravagant and wasteful to use the intravenous route. Riegel and her associates, working in our laboratories, have found that a positive nitrogen balance can be achieved in patients who have undergone a major operation when 0.3 Gm. of nitrogen and 30 calories per kilogram of body weight are given by any oral method but that nearly twice as much nitrogen is required with the same caloric intake when the intravenous route is used. The data of Madden are essentially in agreement with those of Riegel. The aim of any feeding program must be to achieve a positive nutritional balance. This is most easily and least expensively obtained by one of the direct alimentary methods. Dr. Stewart's work substantiates this statement. While it is possible to achieve a positive nitrogen balance by intravenous therapy if this is carefully controlled, it frequently is not achieved. To the extent to which a positive nutritional balance is achieved in patients, a corresponding decrease will be observed in the complications of anesthesia and operation.

Dr. Robert Elman, St. Louis: I have some data on patients who were kept on total intravenuous feeding after abdominal operation on a daily intake of 100 Gm. each of "amigen" and dextrose. In patient, after an extensive resection for jejunal ulcer, there was almost positive nitrogen balance. The net loss on one or two days was only 2 or 3 Gm. Patient, with injections of dextrose alone, would have shown a loss of at least 12 to 20 Gm. of nitrogen a day. In this patient I resected multiple intestinal fistulas and part of the abdominal wall, with primary anastomosis and closure. Note the positive nitrogen balance on six postoperative days even though the nitrogen intake on four of those days was very small (6 Gm.). Data were obtained during seventy-six days after serious abdominal operations. Caloric intake, because of the administration of 100 Gm. of dextrose, was 400. "Amigen" intake was 100 Gm. Note that the average loss of nitrogen was only 3.7 Gm. a day. Anyone who has studied these cases realizes that under the usual regimen or dextrose alone the loss varies between 10 and 20 Gm. of nitrogen a day. Thus it is clear that nitrogen balance or, at the worst, minimal losses will occur in many cases after operation with the daily injection of only 100 Gm. of hydrolyzed protein even when the caloric intake from dextrose is restricted to 400.

BRONCHOGENIC CARCINOMA.—The treatment of bronchogenic carcinoma consists of pneumonectomy with extirpation of the mediastinal nodes. It is our belief that it is just as essential to perform a pneumonectomy and to completely extirpate the mediastinal nodes in a patient with a bronchogenic carcinoma as it is to remove the entire breast and axillary nodes in a patient with carcinoma of the breast. Whereas there are some surgeons who believe that lobectomy is indicated in certain cases of malignant disease of the lung, we are of the opinion that lobectomy has little if any place in the treatment of primary malignancy of the lung. Only by the radical pneumonectomy with complete extirpation of the mediastinal nodes can good results be expected in the treatment of these neoplasms.—Ochsner, DeBakey, and Dixon, J.; Primary Malignancy of the Lung, *South Dakota Journal of Medicine*, February 1948.

RAPID TEST FOR THE DEMONSTRATION OF SICKLE CELLS AND ITS CLINICAL SIGNIFICANCE

KARL SINGER, M.D.
and
SIDNEY ROBIN, M.D.
Chicago

The various factors which cause or influence the phenomenon of sickling red cells are still poorly understood. This peculiar behavior of certain red blood corpuscles seems to be a racial characteristic, confined exclusively to the Negro, although a few cases of sickle cell anemia in white persons have been reported.[1] From what is so far known, one must assume that sickling will only occur in the presence of a fundamental alteration in the physicochemical structure of the erythrocyte, since normal cells cannot be induced to undergo such a change in shape. This constitutional structural defect is already demonstrable in the hemoglobin-containing erythroblast.[2]

Hahn and Gillespie [3] made the significant discovery that distortion of the susceptible corpuscles into sickle cells will only take place if the hemoglobin contained in the cells is in the reduced state. Presence of oxyhemoglobin or carbon monoxide hemoglobin prevents the sickle cell phenomenon. If sickled cells are exposed to a sufficient oxygen concentration they revert immediately to their original form. By means of a gas chamber into which susceptible red cells are suspended in a hanging drop of saline solution, the erythrocytes can be transformed at will by admission of alternating streams of carbon dioxide or oxygen into the chamber. Although this ingenious method is too elaborate for routine clinical use,[4] the principle established by it—namely, that sickling will develop only in the presence of reduced hemoglobin—forms the basis of all other tests which have been advocated for the detection of the sickling trait.

Diggs and Pettit [4] in 1940 compared all recommended technics and concluded that the moist stasis test of Scriver and Waugh [5] is the most reliable and the most practical method. In this test anoxia is produced by placing a rubber band around the proximal portion of a finger. Stasis is maintained for five minutes. Then the finger is punctured in the usual way and a drop of the dark blood is sealed under a cover slip as rapidly as possible. The greatest disadvantage of this method is the unavoidable partial reoxygenation of the hemoglobin due to exposure to air when the blood is transferred from the finger to the slide.

From the Department of Hematologic Research and the Kunstadter Laboratory for Pediatric Research, Michael Reese Hospital.

This study was supported in part by the Hematology Research Foundation, Chicago.

1. Greenwald, L.; Spielholz, J. B., and Litwins, J.: Sickling Trait in a White Adult Associated with Hemolytic Anemia, Endocarditis and Malignancy, Am. J. M. Sc. **206**: 158-168 (Aug.) 1943. Morrison, M.; Samwick, A. A., and Landsberg, E.: Sickle Cell Anemia in the White Race: Report of Two Cases with Diagnosis by Splenic Puncture, Am. J. Dis. Child. **64**: 881-887 (Nov.) 1942.

2. Sydenstricker, V. P.; Mulherin, W. A., and Houseal, R. W.: Sickle Cell Anemia: Report of Two Cases in Children, with Necropsy in One Case, Am. J. Dis. Child. **26**: 132-154 (Aug.) 1923.

3. (*a*) Hahn, E. V., and Gillespie, E. B.: Sickle Cell Anemia: Report of Case Greatly Improved by Splenectomy; Experimental Study of Sickle Cell Formation, Arch. Int. Med. **39**: 233-254 (Feb.) 1927 (*b*) Hahn, E. V.: Sickle Cell (Drepanocytic) Anemia, with Report of Second Case Successfully Treated by Splenectomy and Further Observations on Mechanism of Sickle Cell Formation, Am. J. M. Sc. **175**: 206-217 (Feb.) 1928.

4. Diggs, L. W., and Pettit, V. D.: A Comparison of Methods Used in the Detection of the Sickle Cell Trait, J. Lab. & Clin. Med. **25**: 1106-1111 (July) 1940.

5. Scriver, J. B., and Waugh, T. R.: Studies on a Case of Sickle Cell Anemia, Canad. M. A. J. **23**: 375-380 (Sept.) 1930.

Since mature red cells do not themselves consume oxygen, reduction of the oxyhemoglobin must necessarily depend on the oxygen consumption of the variable number of nucleated red cells, reticulocytes and leukocytes available in the sealed preparation. It is therefore not astonishing that sickling may sometimes be demonstrable only after forty-eight to seventy-two hours.

Rather recently Neuda and Rosen [6] reported a new rapid method for the demonstration of the sickling phenomenon. By mixing blood with a broth culture of a saline extract of human feces they could elicit the characteristic distortion of the susceptible erythrocytes within the first hour after preparation of this mixture. They attributed the enhancing of the sickling process to a—hypothetical—cell-damaging factor of enzymatic nature which is supposed to be present in the stool extract.

In this paper we want to describe a method which induces the sickling process in five to fifteen minutes with invariable regularity. The test is based on the principle of suspending the suspected erythrocytes in a culture of nonpathogenic bacteria and then sealing the preparation. The living organisms consume oxygen rapidly and also give off carbon dioxide, thus creating the most favorable conditions for the detection of sickling tendencies.

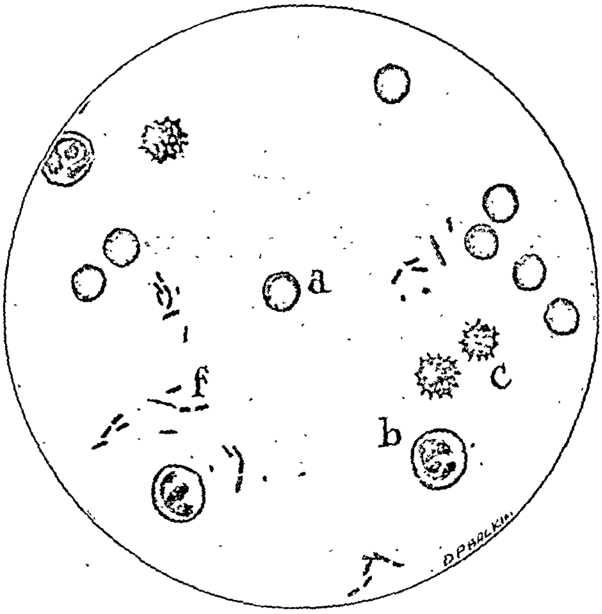


Fig. 1.—Rapid test negative in result: (*a*) red cell; (*b*) white cell; (*c*) crenated red cell; (*f*) bacteria.

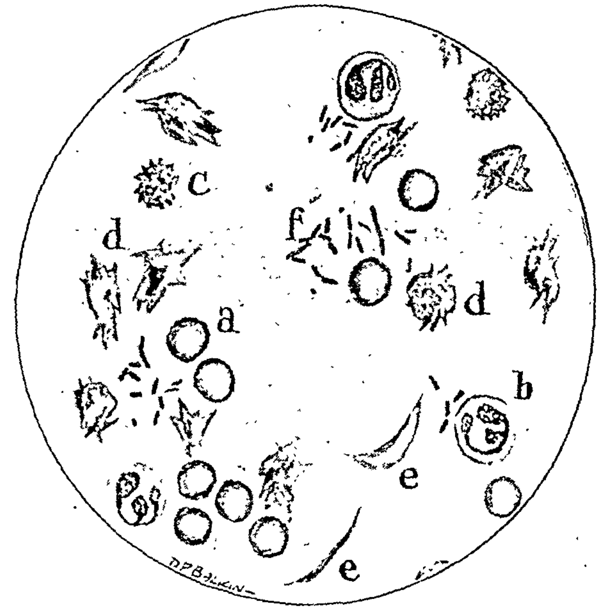


Fig. 2.—Rapid test positive in result: (*a*) red cell; (*b*) white cell; (*c*) crenated red cell; (*d*) oat cell; (*e*) sickle cell; (*f*) bacteria.

TECHNIC OF THE RAPID BACTERIOLOGIC TEST FOR THE SICKLING PHENOMENON

The reagent used in performing the rapid bacteriologic test is a turbid culture of Bacillus *subtilis grown* in dextrose veal broth. B. subtilis was selected because of its high oxygen consumption and its established nonpathogenicity. Cultures of Escherichia coli and Aerobacter aerogenes were found to be almost equally effective. An active reagent was usually obtained by inoculating 4 cc. of broth with a loop of pure subtilis culture grown on an agar slant medium. The broth was then kept in the incubator for several hours at a temperature of 37 C. When inoculation was performed in the late afternoon, the test fluid was ready for use next morning. During the day the broth culture was allowed to stand at room temperature in order to avoid overgrowth, which easily occurs when the culture is kept in the incubator too long. Such an improperly prepared reagent is characterized by diminished or absent motility of the bacteria. For this reason ripening of the culture over the weekends was also obtained at room temperature. Perpetuation of the bacterial reagent can be accomplished by placing each day a few drops of the used broth culture into fresh broth medium. However, that cannot be continued indefinitely, since the bacteria become increasingly sluggish and show signs of deterioration after a few days. Reactivation of the reagent culture must be performed at least once a week by inoculating from an agar slant. Before each performance of the rapid test one must be sure to have an active reagent. Such an active test fluid is characterized by gross turbidity, absence of any precipitate or pellicle in the culture tube and microscopically by numerous actively motile bacteria. Furthermore, hemolysis of the red cells in the preparation within thirty minutes to two hours is also indicative of an effective culture. Although the necessity of caring for the perpetuation of the culture reagent in order to have it ready for use at all times represents the "weak point" of the rapid test, actually it causes little trouble if properly performed and requires but a few minutes per day.

Blood may be obtained by puncturing the finger in the usual way, or oxalated venous blood can also be used. If the blood sample has been kept in the refrigerator, it should be warmed before the test is performed, as chilling of the blood causes a prolongation of the reaction time.

The actual performance of the test is simple. One drop of blood and 1 drop of culture are mixed on a clean slide by means of a glass rod and then covered with a cover slip. The preparation should be free from air bubbles. The edges of the cover slip are sealed with paraffin and the slide is then placed into the incubator at 37 C. for five minutes. If the reading of the preparation shows no presence of sickling tendencies, the slide is again placed in the incubator for ten minutes, and then reevaluated. If after fifteen minutes no characteristically distorted erythrocytes are noted, the result of the test can safely be reported as negative.

However, one must keep in mind that the reaction time in this technic depends on three factors: the "activity" of the test fluid, the temperature and the intracorpuscular forces responsible for the sickling phenomenon. If the first two conditions are kept at an optimum, the third variable is of surprisingly little significance. In this respect the bacteriologic test differs remarkably from the moist stasis method, in which the inherent sickling tendencies of the red cells play probably an important role.

---

[6] Neuda, P. M., and Rosen, M. S.: Preliminary Report on a Rapid Method for Diagnosing Sickle Cell Disease, J. Lab. & Clin. Med. **30**: 456-458 (May) 1945.

Reading of the preparations should not present any real difficulties if the oil immersion lens is used. Figure 1 visualizes a test which is negative in result. In this preparation the red cells are often crenated because the test fluid is not isotonic. In a test with positive result (fig. 2) one may see either the true sickle cells (fig. 2*c*) or cells which are not crescent shaped but look very distorted on account of variable filaments and finlike appendages which protrude from the surface of the cell (fig. 2*d*). We have applied the designation oat cells[7] to all these noncrescentic cells. They can probably be considered as precursors of the true sickle cells. Their presence is absolutely pathognomonic for the sickle cell phenomenon. It is perhaps conceivable that some of the oat cells may be confused with crenated erythrocytes. However, the protrusions of the crenated cells are equally spaced and of equal length, whereas those of the oat cells are irregularly spaced and of variable length and diameter.

The results obtained with the rapid test were arbitrarily graded as (1) negative: no oat or sickle cells present; (2) doubtful: 1 or 2 oat cells per oil immersion field and (3) positive: grade 1 when 3 to 5, grade 2 when 5 to 10, grade 3 when more than 10 unmistakable oat cells were present per oil immersion field, grade 4 when several or numerous crescentic erythrocytes were observed per oil immersion field. Interestingly we have not come across a preparation which has to be graded as doubtful or belonging to grade 1. After fifteen minutes' observation time the results of the test are therefore very distinct.

One hundred and sixteen Negroes were examined with the bacteriologic test, and at the same time a control was set up either with the moist stasis method or, when venous blood was used, with an ordinary sealed moist preparation. Of these tests thirty-eight were positive in result. The material selected for these tests comprises ward patients and also patients attending the Hematology Clinic, and the results are therefore not representative for the occurrence of the sickle cell trait in the Negro population of Chicago. Of the 38 patients giving a positive result, 14 had more or less decided sickle cell anemia. This diagnosis was based on the clinical picture, on determinations of the reticulocyte count and the serum bilirubin, on roentgen studies of the bones and on the failure to respond to iron medication. The remainder of the positive reactors, numbering 24, may be classified as belonging to the sickle cell trait group. None of these patients had anemia. With the exception of 1, they were in the hospital for disorders obviously unrelated to the sickling phenomenon. In regard to the exception, a girl aged 6 years with the signs of cerebral thrombosis of unknown origin, the etiologic possibility of the sickling tendency had to be seriously considered. Bauer[8] has emphasized the significance of such manifestations of sickle cell disease.

In only 1 case were the rapid test positive in result and the control entirely negative after forty-eight hours. In 1 out of the 38 cases—i. e. in 2.6 per cent—the rapid test was negative in result after five minutes but positive after fifteen minutes. In no case was the bacteriologic reaction negative and the control positive. The results of our investigations are summarized in tables 1 and 2.

TABLE 1.—*Sickle Cell Anemia, Fourteen Cases**

Number of Patients	Rapid Test After		Number of Patients	Control After								
	5 Min.	15 Min.		5 Min.	15 Min.	30 Min.	1 Hr.	2 Hr.	3 Hr.	6 Hr.	24 Hr.	48 Hr.
4	4+	Not determined	1	4+	...	...	...	...	...	...	...	...
9	3+	Not determined	1	0	0	0	4+	...	...	...	...	...
1	2+	4+	2	0	0	0	0	4+	...	...	...	...
			3	0	0	0	0	0	4+	...	...	...
			7	0	0	0	0	0	0	0	4+	...

* Grading scale: 0, negative; 1+, 3 to 5 oat cells; 2+, 5 to 10 oat cells; 3+, more than 10 oat cells; 4+, several or numerous sickle cells per oil immersion field.

TABLE 2.—*Sickle Cell Trait, Twenty-Four Cases**

Number of Patients	Rapid Test After		Number of Patients	Control After								
	5 Min.	15 Min.		5 Min.	15 Min.	30 Min.	1 Hr.	2 Hr.	3 Hr.	6 Hr.	24 Hr.	48 Hr.
1	4+	Not determined	12	0	0	0	0	0	0	0	4+	...
15	3+	Not determined	8	0	0	0	0	0	0	0	3+	...
4	2+	3+	3	0	0	0	0	0	0	0	0	4+
3	1+	3+	1	0	0	0	0	0	0	0	0	0
1	0	3+										

* *An explanation of the grading scale may be found in table 1.*

As can be seen from the tables, the rapid test is so sensitive that no differentiation can be made in vitro between the erythrocytes of healthy persons harboring the sickle cell trait and the patients afflicted with sickle cell anemia. This is in accordance with the early observations of Hahn,[3b] who studied the sickle phenomenon with the gas chamber method. Both procedures create the most favorable conditions for the development of the sickling process by rapid reduction of the hemoglobin. Therefore, the variable degree of structural alteration of the red cells which may also contribute to the result is of negligible significance for the bacteriologic test but of far greater importance for the moist stasis test, in which the reduction of oxyhemoglobin takes place much more slowly. The moist stasis test may permit the differentiation between trait and

---

[7] Diggs, L. W., and Bibb, J.: The Erythrocyte in Sickle Cell Anemia: Morphology, Size, Hemoglobin Content, Fragility and Sedimentation Rate, J. A. M. A. **112**: 695-700 (Feb. 25) 1939.

[8] (*a*) Bauer, J.: Sickle Cell Disease: Pathogenic, Clinical and Th peutic Considerations, Arch. Surg. **41**: 1344-1362 (Dec.) 1940. (*b*) B J., and Fisher, L. J.: Sickle Cell Disease with Special Regard Nonanemic Variety, ibid. **47**: 553-563 (Dec.) 1943.

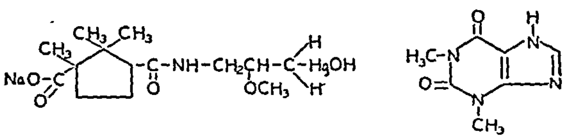


Fig. 3.—Mercurophylline.

All three mercurials have about the same degree of effectiveness. When they are given intravenously diuresis begins in about half an hour and reaches its peak within four hours. The amount of diuresis varies considerably from patient to patient and even in the same patient from time to time. However, if there is any edema fluid at all, one can anticipate some diuresis in well over 90 per cent of patients when the drug is given either intravenously or intramuscularly. When the patient has dehydration symptoms from rapid diuresis, it is probably better to give small doses of the diuretic more frequently rather than one large dose, such as 2 cc., once a week, for instance. Doses larger than 2 cc. should never be given. The intramuscular route is probably safer than the intravenous route.

A diuresis can be obtained in about 70 per cent of patients by the use of a suppository of either mersalyl and theophylline or "mercuzanthin." Rectal irritation may occur so that special care must be taken in the use of this dosage form.

The oral administration in the form of tablets is quite satisfactory in about 60 per cent of patients who have a moderate degree of congestive heart failure. A tablet may be given once or twice a day, preferably after a meal to avoid gastric irritation. Tablets of mersalyl and theophylline and of mercurophylline are available. In many cases by the judicious combination of the oral and parenteral dosage forms it is possible to give the injections much less frequently.

Morphine, meperidine hydrochloride and possibly other hypnotics or sedatives can exert an antidiuretic effect. It is important, then, if an adequate diuresis is not obtained with a mercurial diuretic to be sure that the patient is not receiving one of these drugs at the time.

Enhancement of mercurial diuresis can be produced by administration of ammonium chloride in doses of 3 Gm. a day. The diuresis may increase as much as 20 per cent if the ammonium chloride is administered for two or three days before the diuretic is given. Ammonium nitrate and potassium chloride will also enhance the diuresis but to a lesser extent. Urea in doses up to 60 Gm. per day is a diuretic acting as a nonthreshold substance, taking water with it when excreted by the kidney. It is frequently used as an adjuvant to mercurial diuresis.

Sodium dehydrocholate ("decholin sodium") will also enhance the effect of a mercurial diuretic. It can be given intravenously at the same time the diuretic is given.

The xanthines alone are rarely used today as diuretic agents except in those cases in which the patient is sensitive to all mercurial diuretics or otherwise when mercurial diuretics are contraindicated. Theobromine and sodium salicylate, theophylline, theophylline ethylenediamine and "theocalcin" are all of about equal effectiveness as diuretic agents. Diuresis, however, is not ly as complete or uniform as when the mercurials

The mercurial diuretics are not entirely free from danger, and care must be taken to observe danger signals while patients are receiving the treatment. Among the reactions which may be noted are: 1. Sensitization to one of the mercurials. This is manifested as urticaria, rash, chills and fever, sense of tightness in the chest, etc. If any signs of sensitization appear, one of the other mercurials should be substituted. All three diuretics have been reported as causing reactions in susceptible patients. 2. Digitalis toxicity. Spontaneous redigitalization even to the point of toxicity by mobilization of digitalis from edema fluid may occur. This may be avoided by giving the diuretic in smaller amounts or having the patient initially on a smaller digitalis maintenance dose. 3. Depletion of sodium. This may occur with muscle cramps, abdominal colic, nausea and vomiting, especially in patients on a low sodium diet. 4. Sudden death. This is relatively rare, considering the extensive use of these agents and the fact that they are used in many terminal cases. However, the incidence of sudden death can be reduced if care is taken not to give a diuretic that has caused a reaction previously and to avoid giving this medication to patients with advanced renal or hepatic disease.

ABSTRACT OF DISCUSSION

VALUE OF OXYGEN

Question: When can oxygen help patients with cardiac disease?

Answer: Oxygen is of value to any patient with cardiac disease who shows signs of arterial oxygen unsaturation. This is usually manifested by the presence of cyanosis. It should be pointed out, however, that cyanosis which is due to a shunt from the venous side to the arterial side, such as in congenital heart disease, or cyanosis related to definite stagnation of blood in the peripheral vessels is not helped by oxygen. Cyanosis in which there is arterial unsaturation due primarily to some disturbance in ventilation such as pulmonary congestion or pulmonary edema is definitely benefited by oxygen. Such conditions would occur in coronary artery thrombosis and in acute failure of the left ventricle.

AMMONIUM CHLORIDE AS DIURETIC

Question: How important is ammonium chloride as a diuretic per se?

Answer: Ammonium chloride alone is a mild diuretic. It serves an important purpose to substitute the ammonium radical for sodium. It is valuable as an adjuvant to a mercurial diuretic; the diuresis is increased by about 20 per cent when up to 3 Gm. of ammonium chloride is given per day.

SALICYLATES FOR RHEUMATIC FEVER

Question: Do the salicylates cure rheumatic fever?

Answer: Salicylates will relieve the articular symptoms of rheumatic fever, reduce the fever and make the patient much more comfortable. There is serious doubt, however, whether they influence in any way the course of the disease. Although salicylates have been given in large doses within recent years, the large doses are not free from danger. It should be emphasized that salicylate poisoning can occur and even death may result from an overdosage of salicylates.

UREA AS DIURETIC

Question: How effective is urea as a diuretic?

Answer: Urea as a diuretic has about the same effectiveness as ammonium chloride. It must be given in large doses.

COMPRESSION OF LIMBS AND VENESECTION

Question: What is the place of compression of the limbs and venesection in heart disease?

Answer: Rapid removal of blood from veins does relieve the load on the right side of the heart in acute heart failure. It is not generally a good plan to use this technic, particularly if the patient has anemia. As an emergency measure it has a limited value. It is possible by compression of the veins on all four extremities to pool a fairly large portion of the circulating blood in the extremities and thus relieve the load on the heart.

USE OF EPINEPHRINE IN CARDIAC ASTHMA

QUESTION: What is the value of epinephrine in cardiac asthma?

ANSWER: Cardiac asthma is another term for failure of the left ventricle of the heart and occurs in hypertensive heart disease, aortic insufficiency, aortic stenosis and, occasionally, coronary artery thrombosis. It is an indication of the inability of the left ventricle to pump out the blood that is received by it Epinephrine is not a particularly safe drug to use in such conditions because of the fact that it may cause a sudden rise in blood pressure. However, in small doses it does decrease the bronchial spasm which is associated with failure of the left ventricle and may give relief. It is probably better to give an intravenous injection of a rapidly acting glycoside such as ouabain and to administer oxygen by inhalation or to give aminophylline very slowly intravenously Attacks of cardiac asthma can be prevented by a maintenance dose of digitalis or by the use of mercurial diuretics.

DIGITALIS

HARRY GOLD*, M.D.
New York

The intensive search for purified glycosides of the digitalis series in the past seventy-five or eighty years has resulted in the discovery of numerous principles or mixtures of principles such as "digifolin," "digalen," "urginin," "digilanid," lanatoside C ("cedilanid"), digoxin, ouabain, strophanthin and digitoxin ("digitaline Nativelle"). The extent of absorption from the gastrointestinal tract constitutes the most important point of difference between these materials from the practical standpoint, and with respect to this point the vast majority of the purified materials offer no advantage over the whole digitalis leaf. Digitalis leaf has therefore continued to maintain its position of preeminence among the cardiac glycosides in common use. A satisfactory index of absorption in man may be obtained by the ratio of the oral to the intravenous dose necessary to produce the same effect in patients with auricular fibrillation. If this ratio is 10: 1, 10 per cent is absorbed; if the ratio is 5: 1, 20 per cent is absorbed, and if the ratio is 1: 1, 100 per cent is absorbed. For instance, in the case of a preparation of convallaria, 80 units by mouth were found to produce less effect than 3 units by vein; about 3 per cent was absorbed. An experiment showing the average behavior of 12 patients with auricular fibrillation who received 1.2 mg. of digitoxin, one time by mouth and at another time by vein, shows that in the case of this drug the ratio is 1: 1. This means that practically 100 per cent of an oral dose is absorbed. It was found that in order to produce the same effect in the same person, it requires 40 units of lanatoside C, 20 units of digitalis and only 4 units of digitoxin. Since digitoxin is all absorbed, it follows that only 20 per cent of the active material in digitalis is absorbed, and only 10 per cent of a dose of lanatoside C is absorbed. A comparison was made of digitalis and digitoxin. Patients with auricular fibrillation received 1.2 mg. of digitoxin at one time. The curve showing the development and the disappearance of the action was drawn. After the effects wore off, the same patients received 1.2 Gm. of digitalis at one time. The two curves are identical, showing that digitoxin acts like digitalis leaf when given by mouth, with respect to the speed of absorption and speed of elimination. The difference lies in their potency; digitoxin is approximately a thousand times as potent as the standard digitalis leaf of the present "Pharmacopoeia." Where one would use 1.2 Gm. of digitalis, one may obtain the same effect by using 1.2 mg. of digitoxin.

Because of the high potency of digitoxin, I have advocated the use of the average full digitalizing dose to be given at one time to patients with heart failure who have not recently had digitalis. This produces the full effects in six to ten hours, instead of the thirty-six to seventy-two hours as in the case of the divided dose method using digitalis leaf. Digitalis leaf cannot be used that way because the large quantity of nonabsorbable glycosides in the leaf cause vomiting by local action in 1 of every 5 patients.

Experience with this single digitalizing dose of digitoxin shows that 1.2 mg. given at one time may be expected to reduce the apex rate in patients with auricular fibrillation to between 60 and 85 a minute in about three fourths of the patients. This may be regarded as satisfactory digitalization. Some of the rest of the patients could do with somewhat less or require more to complete the digitalization.

The daily maintenance dose is usually 0.2 mg. In a few patients, the dose needs to be reduced to 0.1 mg., and some of the more tolerant patients require as high as 0.3 mg, or more daily.

The use of digitoxin has greatly simplified the problem of digitalization. I advocate it as the material of choice for routine oral digitalization and maintenance. There are reasons for the belief that it will not be long before the crude digitalis leaf or the tincture will be a cardiac medication of historical interest chiefly, and that digitoxin will take its place.

ABSTRACT OF DISCUSSION

VALUE OF AMINOPHYLLINE

QUESTION: Of what value is aminophylline (theophylline ethylenediamine) in coronary or other types of heart disease?

ANSWER: I do not believe that aminophylline has any value in the routine treatment of the angina of effort by oral administration. I know that it is widely used for that purpose, but in a study which we made some years ago by means of the "blind test" we found that patients were unable to distinguish aminophylline from sugar of milk tablets in relation to the control of cardiac pain on effort. There is no doubt that an intravenous injection of 0.24 Gm. of aminophylline will dilate the coronary vessels, and it may be of some use in acute coronary thrombosis. There are some who use it routinely after coronary thrombosis with a view to making patients less susceptible to ventricular fibrillation and reducing the size of the final scar. I do not use it that way. I am not impressed with the evidence that it produces those results. Furthermore, if I find it necessary to use a coronary vasodilator in coronary thrombosis, I give glyceryl trinitrate under the tongue at frequent intervals. It is more effective than aminophylline for that purpose. There is, of course, the problem of pulmonary edema with bronchospastic symptoms in coronary thrombosis, and in such cases an intravenous dose of aminophylline is often rather helpful. As a diuretic in congestive failure, which sometimes occurs in coronary artery disease, aminophylline is effective but not nearly so effective as the mercurial diuretics.

ALLERGY TO DIGITALIS

QUESTION: Is there any allergy to digitalis?

ANSWER: I have never seen any cases of allergy to digitalis. Several years ago a few cases of allergic reactions to digitali were reported. It must be rare if it occurs at all.

USE OF DIGITALIS TO PREVENT HEART FAILURE

QUESTION: Can digitalis be used to prevent heart f delay its onset or to check cardiac enlargement?

Read in a panel discussion on The Modern Management of Heart Disease in the General Scientific Meetings at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1947.

ANSWER: This question requires some dissection. There is no doubt that the maintenance dose of digitalis prevents the recurrence of heart failure, and theoretically its use before heart failure occurs might delay its onset or prevent failure. If one were to take a suggestion from this, one might begin the use of digitalis in a patient with cardiac disease long before failure is in evidence. It would mean keeping all patients with heart disease under the influence of digitalis for the rest of their life, for all patients with heart disease are candidates for failure. I do not pursue this practice. I am not certain whether I am right or wrong. I might mention that there is the view that cardiac enlargement is a manifestation of a failing muscle and that keeping the muscle under the influence of digitalis might retard enlargement. This is a point that cannot be easily proved.

EXPENSE OF DIGITALIS GLYCOSIDES

QUESTION: What is the expense of the digitalis glycosides in contrast to the dried leaf? Is such expense only a temporary drawback?

ANSWER: I do not know the relative costs of the various purified glycosides as compared with the ordinary dried leaf. In relation to digitoxin, which I believe should replace the crude leaf for routine oral administration, I was recently informed that the cost of the glycoside has been greatly reduced, and that a dose of digitoxin now costs the patients about the same as an equivalent dose of digitalis leaf.

NOTE BY DR. PAUL D. WHITE: In one of the large drugstores in Boston the following prices of digitalis preparations were quoted:

Trade Name	Source	Strength of Tablet	No. of Tablets	Retail Price at Pharmacy
Digitoxin	Abbott	0.20 mg	100	$1.85
Digitaline Nativelle	Fougera	0.20 mg.	100	3.00
Digitoxin	Squibb	0.20 mg.	100	1.85
Purodigin	Wyeth	0.20 mg.	100	1.65
Digoxin	Burroughs Wellcome	0.25 mg.	100	2.25
Cedilanid	Sandoz	0.50 mg.	100	4.00
Digilanid	Sandoz	0.50 mg.	100	3.00
Digiglusin	Lilly	0.1 Gm. (1½ gr.)	100	1.25
Digalen	Roche	0.1 Gm. (1½ gr.)	100	2.25
Dried leaf				
Digifoline	Ciba	0.1 Gm. (1½ gr.)	100	3.00
Digitalis	Davies, Rose	0.1 Gm. (1½ gr.)	100	2.20
Digitalis	Lederle	0.1 Gm. (1½ gr.)	100	1.07
Digifortis	Parke Davis	0.1 Gm. (1½ gr.)	100	2.15
Digitos	Sharp & Dohme	0.1 Gm. (1½ gr.)	100	1.25
Digitalis	Squibb	0.1 Gm. (1½ gr.)	100	1.25
Digitora	Upjohn	0.081 Gm. (1.28 gr.)	100	2.54

TOXICITY OF DIGITALIS LEAF

QUESTION: Is digitalis leaf more toxic than the glycosides when equally effective?

ANSWER. No. Whatever evidence there is on the subject shows that the spread between the therapeutic and toxic doses of digitoxin is the same as for digitalis leaf. It must be remembered, of course, that the potency of digitoxin is about 1,000 times that of digitalis and that one should prescribe 0.1 mg. of digitoxin where one would otherwise prescribe 0.1 Gm of digitalis.

The Circulatory System.—Arterial functions are controlled directly by peripheral centers, probably intramural. These are under a double dynamogenic influence: (a) that of the central nervous system (centers of the spinal cord and of the medulla); and (b) that of the cardiac sinus. This latter structure is able to induce either paralysis or tonic rigidity of the arteries, conditions which can be modified only by an extremely violent stimulation of the nerve centers as that which occurs with their destruction. The circulatory system has a complex regulatory mechanism which is influenced by the nervous system but has in itself the means of self-regulation.--Marceau, F.: Physiological Properties of Arteries, *Experimental Medicine and Surgery*, February, 1948.

QUINIDINE

LOUIS N. KATZ, M.D.
Chicago

There is a remarkable similarity in the discovery of the utility of quinidine with that of digitalis in that both were made by laymen. In 1914 one of Wenckebach's[1] patients informed him that the quinine which he had prescribed for malaria made his irregular heart action (due to auricular fibrillation) regular. Wenckebach was quick to find that quinine was an effective drug in the treatment of auricular fibrillation. Frey,[2] in 1918, established the fact that quinidine, a closely related compound, was more effective for this purpose. This was soon confirmed and extended by many workers, notably by Sir Thomas Lewis.[3] However, the early enthusiasm for quinidine soon waned because of a number of unexpected deaths attributed to it, and the pendulum swung back to nearly complete abandonment of the drug. Recently, as experience in its use improved, it has come to play an important role in cardiac therapy.

Its recent use has been increased in part because of the growing realization that large doses may be used with relative safety as well as because of the establishment of its effectiveness in ventricular tachycardia and in cases of coronary disease with premature systoles. Its utility in converting auricular fibrillation to sinus rhythm has long been established.

In this presentation a summary will be given of the present status of quinidine in cardiac therapy with some notes on the most recent developments.

It is now established[4] that quinidine prolongs the refractory period of the heart and the electrical systole of the ventricles. It prolongs conduction in the ventricles, in the auriculoventricular junction and, to a certain extent, in the auricles. It decreases the excitability of the myocardium and acts as a "soothing agent" on ectopic pacemakers. It depresses the sinus node and tends thereby to slow the heart rate. It paralyzes the action of the vagus nerve, which tends to neutralize to a certain extent its direct effects particularly on the sinus node and auricles. So far as it leads to a slowing of the heart rate it causes an increased amplitude of contraction, since more time is available for filling of the heart. In excess, however, it is a poison which tends to depress the myocardium and may lead to respiratory disturbances and even respiratory arrest. By virtue of its direct action on the smooth muscles of the blood vessels it may, with large doses, cause a fall in blood pressure. These multiple actions of quinidine explain the fact that contrary effects on certain properties of the heart may develop.

Quinidine has definite effects on the electrocardiogram.[5] It alters the P wave and the QRS complex.

From the Cardiovascular Department, Michael Reese Hospital. This department is supported in part by the Michael Reese Research Foundation.

Read in a panel discussion on the Modern Management of Heart Disease in the General Scientific Meetings at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1947.

[1] Wenckebach, K. F.: Die Unregelmassige Heztatigkeit und ihre Klinische Bedeutung, Leipzig, W. Engelmann, 1914.

[2] Frey, W.: Weitere Erfahrungen mit Chinidin bei Absoluten Herzunregelmassigkeit, Klin. Wchnschr. 55:849, 1918.

[3] Lewis, T.; Drury, A. N.; Weill, A. M., and Iliescu, C. C.: Value of Quinidine in Cases of Auricular Fibrillation and Method of Studying Clinical Reaction, Am. J. M. Sc. 163:781, 1922.

[4] Goodman, L., and Gilman, A.: The Pharmacological Basis of Therapeutics, New York, The Macmillan Company, 1941.

[5] Katz, L. N.: Electrocardiography, ed. 2, Philadelphia, Lea & Febiger, 1946.

It prolongs QRS duration, leading to intraventricular block. It prolongs the P-R interval and may lead to more advanced auriculoventricular block. It may cause sinoauricular block. It leads to deviations of the S-T segment and may greatly alter the T wave, inverting it, notching it and prolonging its duration. It may lead to ectopic rhythms of various sorts. Particularly hazardous is the appearance, with excessive doses, of ventricular premature systoles, tachycardia and fibrillation.

Quinidine is rapidly absorbed and excreted. With the oral route, its maximum effect is obtained in two to four hours. This has been demonstrated indirectly by its effect on the auricular rate in auricular fibrillation, its effect on the duration of electrical systole and directly by chemical analysis of the blood.[6] With intramuscular or intravenous administration, the maximum effect occurs sooner, in one-half to one and one-half hours. With the oral route, minimal residual effects persist for six to eight hours, and the effect is completely gone and no further urinary excretion occurs in twelve to twenty-four hours. When repeated doses are given the effects of each are additive. The clinical implications from these data are: (1) that repeated oral doses given more than six hours apart are not cumulative; (2) that the interval between doses should be less than six hours and preferably two to four hours, and (3) that cumulation may occur when the drug is administered every hour or two.

One of the important considerations of quinidine is its toxicity.[7] This may be the result of idiosyncrasy with the symptoms of cinchonism. While this is rare, it is safest to employ a test dose of 0.2 Gm. by mouth and wait two to three hours for reaction before proceeding further. Cinchonism may also develop during therapy with larger doses of quinidine. The evidence of this intoxication includes tinnitus, vertigo, visual disturbances, nausea, vomiting, diarrhea, headache, confusion, syncope, fever, cutaneous rashes, petechiae and angioneurotic edema. More serious than these are the respiratory disturbances such as asthma, depression of breathing and even respiratory arrest. A troublesome finding in its use in auricular fibrillation or flutter is the paradoxic tachycardia which may follow the slowing of the auricular rate. For this reason some clinicians prefer to depress auriculoventricular conduction with digitalis in such cases before or simultaneously with quinidine. A serious hazard is the development of ventricular fibrillation or cardiac asystole. The danger of the occurrence of embolism when auricular fibrillation is converted to sinus rhythm must be considered. However careful studies show that this does not occur as often as suspected. Many of the episodes attributed to embolism are really because the direct effect on the heart leads to asystole or ventricular fibrillation. It is stated that the occurrence of petechiae is to be considered a warning sign of impending embolization.

INDICATIONS FOR USE OF QUINIDINE

The indications for the use of quinidine are at least seven in number:

1. Quinidine is an effective drug in breaking the mechanism of paroxysmal tachycardia of supraventricular origin. It has been widely employed for this purpose with excellent results.

2. Quinidine has been effectively employed to break the mechanism of paroxysmal ventricular tachycardia, chaotic heart action and, on occasion, even paroxysmal ventricular fibrillation. These mechanisms are so detrimental to the heart, especially when complicated by organic heart disease, that quinidine has been a blessing under such circumstances. Papaverine has been employed for similar purposes.[8]

3. Quinidine has been employed prophylactically to prevent recurrent paroxysmal arrhythmias. It has proved to be as valuable prophylactically as in breaking the mechanism of these forms of rapid heart action.

4. One of the newer developments in the use of quinidine is its employment to suppress frequent premature systoles. In normal subjects this should be employed only when the premature systoles cause distressing symptoms. For example, I have recommended its use by a surgeon who during operation experienced frequent premature systoles which were subjectively very disturbing whenever he ran into unexpected difficulties. It proved effective. There is no need to stress the fact that premature systoles without symptoms occurring in normal persons require no therapy, and care should be taken not to give cause for "cardiac fixation" in such subjects by suggestion of therapy. Quinidine may be used when digitalis causes premature systoles. Of course, under these circumstances digitalis should be stopped or the dose diminished. However, the use of quinidine will tend to lessen such digitalis-engendered premature systoles, especially when the benefits of digitalis require a dose which leads to ectopic beats. Quinidine may be used prophylactically in patients with mitral stenosis complicated by frequent auricular premature systoles in order to prevent or delay the onset of auricular fibrillation.

However, the most important use of quinidine in the case of premature systoles is the suppression of ventricular premature systoles in patients with coronary disease, whether this be an acute infarction or a variety of chronic coronary insufficiency. By "soothing" the ectopic pacemaker quinidine tends to avoid the risks of the development of paroxysmal tachycardia and the more serious ventricular fibrillation, which may cause unexpected death. In the presence of ventricular premature systoles in coronary disease quinidine is one of the important and potent forms of therapy. Some have gone so far as to employ quinidine in all cases of recent infarction. Quinidine will definitely lessen deaths in coronary disease attributed to ventricular fibrillation. In chronic coronary insufficiency it will lessen the frequency of congestive failure and angina pectoris, both of which may be precipitated by frequent premature systoles. Under these circumstances quinidine is one of the potent drugs available in prophylaxis of angina pectoris and heart failure.

5. Recently[9] it has been shown that quinidine in large doses will abolish, in most cases, the mechanism of the Wolff-Parkinson-White syndrome. This is used diagnostically and not therapeutically.

---

6. (*a*) Sagall, E. L.; Horn, C. D., and Riseman, J. E. F.: Studies on the Action of Quinidine in Man: I. Measurement of the Speed and Duration of the Effect Following Oral and Intramuscular Administration, Arch. Int. Med. **71:** 460 (April) 1943. (*b*) Sturnick, M. I.; Riseman, J. E. F., and Sagall, E. L.: Studies on the Action of Quinidine in Man: II. Intramuscular Administration of a Soluble Preparation of Quinidine in the Treatment of Acute Cardiac Arrhythmias, J. A. M. A. **121:** 917 (March 20) 1943. (*c*) Delevett, A. F., and Poindexter, C. A.: Plasma Concentrations of Quinidine with Particular Reference to Therapeutically Effective Levels in Two Cases of Paroxysmal Nodal Tachycardia, Am. Heart J. **32:** 697, 1946.

7. Goodman and Gilman. Carter, J. B.: Use and Abuse of Quinidine, M. Clin. North America **29:** 215, 1945.

8. Lindner, E., and Katz, L. N.: Papaverine Hydrochloride and tricular Fibrillation, Am. J. Physiol. **133:** 155, 1941.

9. Littman, D., and Tarnower, H.: Wolf-Parkinson-White A Clinical Study with Report of Nine Cases, Am. Heart J. 3

this may be followed by a shock state identical to that seen during the war, or following trauma or surgical procedure. At the Michael Reese Hospital, my colleague, Dr. William Brams, in an unpublished study has indicated that desoxyephedrine appears to be successful in overcoming the vascular collapse. If his results are substantiated by further experience a worth while addition to our armamentarium is at hand. When shock develops after a recent myocardial infarction one is dealing with a real emergency, since the chance that shock will lead to death is increased in the presence of the acute damage to the heart. In shock the circulating blood volume declines and hemoconcentration occurs. It is therefore obvious that the manner of counteracting it is to add fluid to the circulation, and plasma is the ideal fluid. The risk of overloading the heart by adding plasma to the circulation is exaggerated, provided the plasma infusion is not too rapidly administered. Within limits it is not the quantity of plasma given but the rate of administration that is disturbing. The work of Altchule has shown that even the failing heart can cope with infusions into the blood stream. In the presence of a recent myocardial infarction the plasma infusion must be carefully watched in the hospital, and during its administration the level of venous pressure and the clinical state of the patient followed. Whenever the venous pressure begins to rise rapidly and in an accelerated fashion the limit of the heart is reached and the plasma should be stopped or the rate of infusion sharply decreased. It should be stopped also if rales appear in the lungs. Of course, administration of the plasma can be stopped when definite improvement of the circulation is obtained or when it is obvious that the infusion is acting detrimentally. I do not want to be misunderstood as advocating the indiscriminate use of plasma, but I believe that plasma properly administered has a definite role in cardiogenic shock with low venous pressure just as it does in traumatic and surgical shock with hemoconcentration. Of course, the risks are greater in the patient with recent myocardial infarction since the damage to the heart is the initiating cause of the shock. Nevertheless this does not negate the use of plasma, and brilliant results have been reported. Plasma in recent myocardial infarction complicated by shock is heroic therapy.

RUTIN IN HYPERTENSION

Question: What is the value of rutin in hypertension?

Answer: The work of Griffith has been confirmed in showing that rutin tends to prevent hemorrhagic manifestations and counteracts capillary fragility. It, therefore, seems reasonable that it may be of value in counteracting hemorrhagic manifestations in hypertension. However, the final decision as to the utility of rutin must await a wider clinical experience.

HYPNOTICS AND SEDATIVES

Question: What is the place of hypnotics and sedatives in cardiac therapy?

Answer: Hypnotics and sedatives are of value in heart disease not only by virtue of their relieving or lessening apprehension and dyspnea but also by favoring sleep. It is so common an experience that it is almost redundant to restate it, that a good night's sleep has a remarkable effect on the physical state of the patient with cardiac disease and that contrariwise a poor night's sleep has a deleterious effect. In principle, the action of hypnotics and sedatives is to decrease the twenty-four hour work and energy requirements of the body which must of necessity lessen the requirements for hard work on the part of the heart. Since the heart must completely recover during the succeeding diastole for the work it does during its systole, it is obvious that any lessening of the work requirements will be beneficial. Imperfect sleep, restlessness and emotional upsets all put added strain on the heart. They should therefore be avoided as far as possible. Dyspnea also increases the energy requirements of the body and therefore serves as a strain on the heart. Sedation which lessens dyspnea and makes breathing more deliberate therefore reduces the strain on the heart. It must also be recalled that sedatives may lessen coughing, and a cough—it must be emphasized since it is not widely enough recognized—puts a great strain on the heart. Clinicians should be concerned about these matters as much as they are about the administration of drugs like digitalis, the mercurials and quinidine.

PAPAVERINE

Question: Of what value is papaverine in heart disease?

Answer: I still believe that papaverine has a definite place in the treatment of coronary heart disease. It is a sedative which is not habit forming. It is a "soothing agent" on ectopic pacemakers and it is one of the most powerful of the coronary vasodilators available. These statements are based on actual observation of animals and human beings. Its use intravenously should be limited to a few cases of recent myocardial infarction in which one is tempted to use morphine intravenously or in cases of recent myocardial infarction complicated by paroxysmal ventricular tachycardia. For the latter, quinidine may be used and may be more effective, but quinidine is a protoplasmic poison and when given intravenously may be hazardous. Papaverine may also be used profitably in recent pulmonary embolism. The precaution in giving papaverine intravenously is to use a slow administration over minutes, but the dose to be used should be from 1 to 1½ grains (60 to 100 mg.). There are unpleasant side effects in some instances, and there may be a profound drop in blood pressure. These are its hazards and contraindicate its use. Oral administration of papaverine may be used in recent myocardial infarction to dilate the coronary arteries, and especially when ventricular premature systoles are encountered. A large daily dosage is to be employed, 1½ grains three to four times a day. It should be stopped when any unpleasant side effects appear. Papaverine is quickly excreted and does not accumulate when given at the rate schedule suggested. It has a definite place in recent myocardial infarction, but is not universally applicable. The greatest benefit to be derived from papaverine is in chronic coronary disease complicated by angina pectoris and more especially when ventricular premature systoles are present. For the latter, however, quinidine may be preferred, although there is no reason why quinidine and papaverine may not be used simultaneously. Again, unpleasant side actions are contraindications to the use of papaverine. For chronic coronary heart disease the dose of papaverine should be begun at 1 grain three to four times a day and should be increased until the effect desired is obtained or side actions require stoppage. The aim should be to use the minimal amount per day which is effective. After a short trial, absence of any positive effect should lead to its discontinuance. Papaverine appears to have no effect on supraventricular ectopic rhythms and should therefore not be used for auricular premature systoles, supraventricular paroxysmal tachycardia, auricular fibrillation or auricular flutter. At the present time we are making a resurvey of the effectiveness of papaverine in chronic coronary insufficiency to see whether or not our early enthusiasm can be verified. We hope to be able to report on this survey within the next year.

PANEL DISCUSSION

On papers by DeGraff, Gold and Katz

Paul D. White, M.D., Boston, Moderator

Dr. White: It is of great importance to us all to have frequent appraisals of the value of therapeutic measures, both old and new, especially in the case of such a common and serious condition as that of disorders of cardiac function. We are fortunate to have assembled here at this centennial session of the American Medical Association several authorities on the subject. It is also a satisfaction to tell you of a most instructive exhibit on "Cardiac Drugs" prepared by one of the members of the panel, Dr. DeGraff, for the Cardiovascular Section of the Scientific Exhibit; you will find it on the main central part of the stage in the large hall of this building.

Dr. George W. Pickering, London, England: To round off this discussion perhaps I should refer to some principles in the treatment of heart disease which are not quite so new. The physician is rarely able to cure heart disease in his patients. In 9 cases out of 10 he is dealing with the management of a chronic disease, and it is important that he should look at his patient in this light. He should for instance remember that it is easy to make an invalid out of a patient with cardiac disease by inflicting unnecessary and petty restrictions and by arousing unnecessary alarm. We learnt a good deal about the importance of psychologic factors in heart disease during the recent war, when once again the problem of neurocirculatory asthenia became acute. Many of us have suspected that the doctor might play an important part in the causation of this malady. Paul Wood provided interesting figures in support of this view. In 33 of a series of 59 recruits who had been wrongly informed that they had heart disease neurocirculatory asthenia developed, and in 26 it did not. Of the 59, 30 had a family history of cardiac neurosis or nervousness, and in 27 of these neurocirculatory asthenia developed and in only 3 it did not. In 48 subjects activity was restricted by the doctor; of these 37 obeyed and 11 disobeyed; of 28 with a positive family history 27 obeyed and 1 disobeyed the doctor's instructions. In other words, in a patient with a family history of nervous breakdowns who obeys his doctor's instructions regarding restriction of activity de Costa's syndrome is extremely likely to develop, even when the patient has no organic heart disease. Some consider, and I am one of them, that the symptoms of neurocirculatory asthenia are no less likely to develop if the patient has in fact an organic cardiac lesion. It is therefore of the first importance in dealing with heart disease that the patient should not be frightened. With regard to treatment by drugs I confess that I am a medical anachronism and that I still use the powdered leaf of digitalis in the treatment of heart failure. This became almost obligatory in Great Britain during the war because of shortage of alcohol and manufacturing difficulties. I have been satisfied with the result, and have become so familiar with the use of the powdered leaf that I have not yet seen good reason to change. I am undoubtedly conservative, but I tell myself that it is more important for a general physician who has to deal with many kinds of maladies to be really familiar with one good preparation of a potent drug than to acquire the latest refinements.

Dr. Gold. I note that Dr. DeGraff still speaks of the use of the mercurial diuretics in heart failure when patients no longer respond to digitalis. This is the traditional way of viewing the utility of the mercurial diuretics. We no longer think this correct. The mercurial diuretics represent the most important addition to the list of cardiac medications, and they are indicated in every case of congestive failure. A great deal is lost in the efficiency of treatment if we wait to put them to use only after we have discovered that the patient does not respond sufficiently to rest and digitalis. We have just completed a study in which we found that if patients with congestive failure receive digitalis and the mercurial diuretic simultaneously and systematically, immeasurably better results may be expected; namely, complete disappearance of congestive failure, in 90 instead of approximately 50 per cent of cases, and a reduction in the period of hospitalization to about one third of the time that it takes to produce complete recovery from congestive failure by the prevailing methods in which the mercurial diuretic is put to use only after digitalis has failed to bring about satisfactory results.

Dr. DeGraff: I agree with Dr. Gold that mercurial diuretics are of utmost importance in the treatment of congestive heart failure and that the combined use of a mercurial diuretic and digitalis will relieve congestive heart failure more effectively than either one alone. However, the tendency to use mercurial diuretics alone at very short intervals in high doses not only may be dangerous but may cause the patient to suffer from severe symptoms of dehydration. Except in the later stages of their disease, most patients with heart disease can be kept free of failure by the oral use of a digitalis preparation, salt-poor diet and limitation of physical activity with occasional periods of bed rest. I do not see the necessity of giving such patients mercurial diuretics either intravenously or intramuscularly. As the heart disease progresses, a mercurial diuretic will be needed. One should at first try an oral preparation, and then if that is not sufficiently effective, the parenteral use of a mercurial diuretic is indicated. In his discussion of the cardiac glycosides, Dr. Gold has stressed the question of the completeness of absorption of digitoxin as compared with other glycosides. He failed to take into account that digitoxin has an exceedingly long latent period and a very long period of dissipation, factors which would definitely influence the experiments which he cites. As a matter of fact, whether the absorption from the gastrointestinal tract of the glycosides digitoxin, digoxin, lanatoside C and gitalin is or is not 100 per cent is not important, since extensive clinical studies by many observers have already amply demonstrated that all of these glycosides are sufficiently well and uniformly enough absorbed to be used when digitalis is indicated. In our experience, the extremely long latent period and the slow rate of dissipation of digitoxin make this glycoside less desirable for rapid oral digitalization or for maintenance than, for instance, digoxin. Should a patient become toxic from digitoxin, the symptoms may persist as long as a week, whereas toxicity is of much shorter duration with the other glycosides. Although Dr. Gold states that some patients could do with somewhat less or require more to complete the digitalization, he persists in advising a single initial dose of 1.2 mg. of digitoxin. If some patients could do with less, then why start with this dose? We find that a much safer starting dose is 0.6 to 0.8 mg., depending on the weight and age of the patient. For total digitalization with digitoxin Batterman and I have found that an average of 2.2 mg. is necessary, with the extremes of 0.8 mg. to 5.0 mg. The use of the cardiac glycosides represents an advance in treatment in that relatively pure principles are given rather than mixtures. It must be pointed out, however, that each glycoside has its own peculiarities. These are concerned not only with dosage, but with the time at which the effect begins after administration, the rate of dissipation, and the duration of toxicity.

Dr. Katz: I believe that digitalis should be given as pure glycosides in preference to whole leaf. Infusions and tinctures are going out of fashion. Our experience with digitoxin coincides with that of Dr. Gold. In addition to the slowly excreted digitoxin I would favor the use orally of some more rapidly excreted glycosides, such as digoxin and cedilanid. These latter may be used also intravenously for rapid action, but for quicker action strophanthin K or ouabain is preferable. I believe that by and large these glycosides operate in a similar fashion; their differences in action depend on the rate of their absorption and the rate of their excretion and destruction. I am sure that with time the English cardiologists will universally favor the use of pure glycosides. They are already using digoxin.

Dr. White: In the time that remains I shall make a few summary remarks concerning drugs in cardiac therapy. First, I want to emphasize that digitalis leaf itself in powdered form is still an effective drug in the treatment of congestive heart failure and in reducing the ventricular rate in auricular fibrillation and flutter. Its strength, of course, should be checked, but inasmuch as practically all the proprietary preparations of digitalis leaf on the market today are carefully standardized and reliable one may have much more confidence in the use of the crude digitalis leaf than was possible years ago, and, so far as I know, it still remains the least expensive way to give digitalis. As has been brought out in the discussion, the effect of digitalis is dependent on absorption, in large part at least, but there are individual variations and experience with each patient must determine the optimal dose for that patient. Certainly, as pointed out by Dr. Gold and others, digitoxin and others of the purified preparations are satisfactory now for routine use and have the advantage over the leaf itself that one may rely on the preparation quantitatively by weight without the need of standardization except on each individual patient. It would appear that we are going through a transitional period from the use of the pure digitalis leaf to the use of the pure glycosides. The transition certainly has been slow to date, however, for Nativelle as long as one hundred years ago produced the first purified glycoside (digitaline), which is our digitoxin of today. As for mercurial diuretics, one mu admit that they have been a very important addition to therapeutic armamentarium in the treatment of congestion of all sorts, particularly that due to heart failure, during the past two decades. However, they must be suited also to the individual patient and may on occasion produce toxic effects. One of these toxic effects is due to digitalis intoxication as the result of the transfer to the circulating blood of edema and serous cavity fluids containing digitalis which may have already been given in full dosage. In the use of mercurials the intravenous route is the best and the intramuscular route second best: less satisfactory is the rectal route, and least of all oral medication It is to be remembered that mercurial poisoning may be induced by oral therapy. Although the treatment of congestion by mercurials may be carried on for years successfully and be given even as often as every day because of the lack of accumulation, it is usually possible to reduce greatly the amount of mercurial diuretic needed or even to omit it altogether, with great benefit to the patient who may be fatigued by vigorous diuresis, if one reduces the sodium intake to a low level. During the last few years I have been able to dispense with mercurial diuretics altogether or to use them infrequently in many of my patients with myocardial failure.

I would like to add concerning the mercurial diuretics a word as to dosage. Two cubic centimeters are often too much, given either intramuscularly or intravenously, and I find that on occasion ½ cc. or even ¼ cc. intravenously has a good effect and is less exhausting. Such smaller doses may also be given more often without upsetting the patient. Ammonium chloride not only enhances mercurial diuresis but acts also by itself. It is more effective if not given constantly and it may be reserved for a few days at the time of the injection of a mercurial diuretic or it may be used three or four days at a time say every two weeks. The xanthine diuretics have been largely given up because of the greater effectiveness of mercury. As has been pointed out, morphine and Meperidine may decrease mercurial diuresis. Quinidine has come back into routine use in many places. In fact, we have never abandoned it at the Massachusetts General Hospital and I have found it helpful in many cases during the last twenty years. Its advantages far exceed its disadvantages such as its toxic effects and danger. Moreover, it should be used in prophylaxis as well as in treatment. I agree with Dr. Katz in supporting its use in coronary heart disease and have routinely given it every three to four hours in the dosage of 0.2 Gm. (3 grains) of the sulfate during the first two weeks after the onset of acute myocardial infarction. Fagarine I have not yet received from South America, although it was to have come for us to try last year. Aminophylline has its greatest value in improving respiratory function and in clearing, at least temporarily, Cheyne-Stokes breathing and cardiac asthma. It is not per se a heart stimulant. Glyceryl trinitrate I often use prophylactically in the small dosage of 1/200 of a grain (0.3 mg.) or less. Finally, I want to emphasize the value of other methods of treatment as touched on by Dr. Pickering, a proper balance between rest and activity, physical and mental, individual testing of reaction to tobacco, the importance of expert nursing, which may make the difference between success and failure, and the use of an optimistic outlook at the time of detailed explanation of their troubles to patients with cardiac disease who are usually intelligent and who, if told about their condition, are more likely to cooperate in their treatment themselves. We should constantly watch out for and seek sound new measures of treatment but also should hold on to the best measures of the past until something really better comes along. I would like to attend a panel like this after another hundred years. Perhaps there won't need to be any such panel if we can only learn about the underlying causes of heart disease and failure In conclusion, I thank the panel members for their remarks and yourselves for your attention.

Murmurs of Congenital Heart Disease.--The murmur of patent ductus arteriosus is a continuous one lasting throughout systole and diastole, with intensification in early diastole where it covers the second heart sound and proceeds to obscure the third heart sound as well.--Evans, W.: *British Heart Journal*, October, 1947.

SARCOIDOSIS

A Review and an Appraisal

HENRY E. MICHELSON, M.D.
Minneapolis

The purpose of this paper is to assemble, to evaluate and if possible to add to the known facts about the condition for which I prefer the term sarcoidosis. The disease has been recognized for about half a century, and although many observers and investigators have contributed their findings Boeck's name will remain most prominent in the minds of students of this interesting disease. Hutchinson, Besnier, Schaumann, Darier and Pautrier have all made contributions, and in more recent years Leitner[1] and Coste[2] have helped to clarify the diverse collection of biologic and clinical findings which constitute sarcoidosis and have collected in their writings the best of the investigations and discussions anent the etiology, morphology and course of this disease.

I believe that for the present the name sarcoidosis is preferable, because it implies a wider distribution than sarcoid and emphasizes systemic involvement. Furthermore, the employment of men's names would result in a long compound title. Hunter's[3] historical sketch covers the evolution of the nomenclature. Sarcoidosis, Besnier-Boeck-Schaumann's disease, benign lymphogranulomatosis, epithelioid reticuloendothelial granuloma, noncaseating tuberculosis and other names have been proposed, but until more definite etiologic evidence supplies a term which indicates the cause of the disease, sarcoidosis would seem to be the most concisely descriptive; "sarcoid" allows complete identification, while the ending "osis" implies something more than merely a cutaneous lesion.

The present conception of this disease is that it is systemic, following a chronic course and having the characteristics of a benign infection. Its prodromal and early stages are not well known, and in most patients the lesions regress and disappear. The locations of this disease are apparently manifold; the more thorough and refined investigations became, the more tissues were added to the long list of those where sarcoid inflammation has been located.

One of the challenges that the disease presents is the difficulty and danger of a purely clinical diagnosis. No examination of a patient in whom sarcoidosis is suspected is complete without searching for lesions on the skin and mucous membranes. The superficial nodes and palpable glands as well as the eyes and small bones of the extremities should be examined, and roentgenologic studies of the thorax, hands and feet are imperative. More refined procedures such as sternal biopsy, electrocardiographic study and examination of the blood are also indicated but are not so productive of valuable evidence. Positive diagnosis rests on histologic examination, and it is doubtful whether a diagnosis of sarcoidosis can be accepted without such microscopic evidence.

The immunobiologic state of the patient is evaluated by the tuberculin test and more recently by Kveim's

---

From the Division of Dermatology and Syphilology, University of Minnesota, H. E. Michelson, M.D., Director.

Read before the Section on Dermatology and Syphilology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1947.

[1] Leitner, St. J.: Der Morbus Besnier-Boeck-Schaumann, Basel, Benno Schwabe, 1942.

[2] Coste, M. F.: Critères et frontières de la maladie de Schaumann, Ann. de dermat. et syph. **1-2**: 6-17 (Jan.-Feb.) 1945.

[3] Hunter, F. T.: Hutchinson-Boeck's Disease (Generalized Sarcoid sis), New England J. Med. **214**: 346, 1936.

test. Because of the frequency of a negative reaction in this disease to various dilutions of tuberculin, a tremendous amount of effort has been expended in exploring the so-called positive anergy and its significance concerning a tuberculous etiology. Granting that a negative reaction cannot be overlooked, nevertheless it appears to have been overemphasized to the exclusion of a possibly more fruitful search for the presence or absence of a bacillary cause. Few investigations have been directed along bacteriologic lines other than searches for the tubercle bacillus.

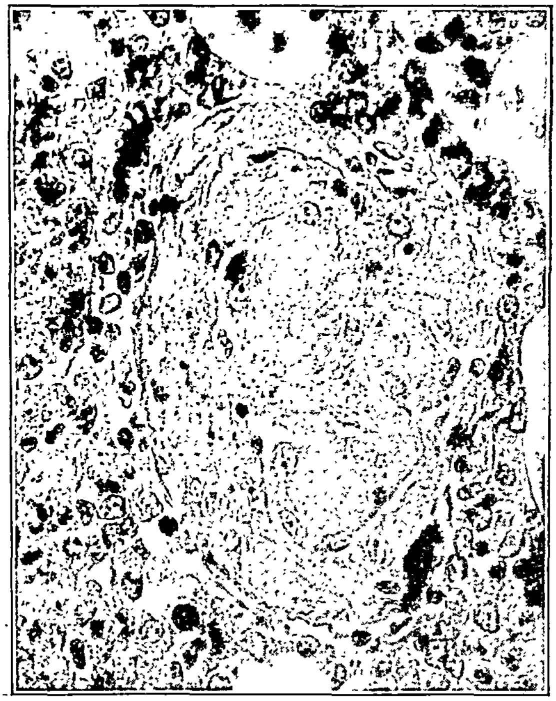
Sarcoidosis may occur at any age, having been found in infants and the aged, in both sexes and in all races; however, geographic location appears to have some importance. The Scandinavian writers have certainly led in the number of articles, but the great number of patients with sarcoidosis found in the polyglot population of the United States speaks against a racial preference. In the American Negro, however, sarcoidosis, or possibly a sarcoid-like tuberculosis, is a problem by itself, and for the time being I believe that discussion and deductions would be simplified if this group of patients were kept apart until more positive knowledge is acquired. Those whose investigations are confined to Negroes have the better opportunity to establish or deny the relationship of sarcoidosis to the development of frank tuberculosis. Whether it is a transition or a complication or whether the biologic elements control the course of events should be and undoubtedly will be proved by special investigations made on this group.

EVOLUTION

The prodromal and early manifestations of sarcoidosis are not known. What may dermatologists look for as a beginning sign or symptom in such patients? It may well be that we shall continue to find the first evidences in the skin because internal lesions, even though they precede cutaneous lesions, provoke no symptoms. Some sarcoidosis patients admit that a persistent erythematous patch has existed at the site of a subsequent node, but as a rule cutaneous lesions develop insiduously. Forssman[4] critically examined some cases of erythema nodosum and erythema multiforme, with negative tuberculin reactions, having early sarcoidosis in mind. In 3 of 10 cases, using Lemming's method of injections of BCG (Bacillus of Calmette and Gúerin) with subsequent histologic examination, he found pathologic reactions similar to those found in sarcoidosis. He wondered whether some cases of erythema nodosum or multiforme might not represent the acute stage of some disease, the lesions being merely a link in a chain of evidence which eventually would lead to a diagnosis. This is an attractive hypothesis and should be kept in mind when histories of patients with sarcoidosis are taken. The early cases as observed by Kyrle and Gans are well known by all students of this subject, but they bring up this query: Since the tuberculous etiology is by no means proved, are we justified in diagnosing a case as sarcoidosis, despite the histologic observations, if tubercle bacilli have been demonstrated, or are we then dealing with true tuberculosis? I would be inclined to believe the latter, and certainly so if the bacilli in addition to other unmistakable findings of tuberculosis were demonstrated.

CUTANEOUS LESIONS

It is not within the province of this paper to review again the various morphologic forms of cutaneous and subcutaneous lesions found in sarcoidosis. I do want to emphasize that almost every type of cutaneous change from erythema to formation of tumor has been attributed to this disease, by the histologic finding. I believe that we should stress the polymorphy, avoid the use of terms such as Boeck's miliary sarcoid, lupus pernio and Darier-Roussy sarcoid, and use descriptive terms such as papular cutaneous or nodular subcutaneous lesions, always retaining the diagnosis of sarcoidosis and listing the positive findings. For example: sarcoidosis with (*a*) papular cutaneous lesions; (*b*) pulmonary lesions; (*c*) enlarged inguinal nodes. One must keep in mind the decidedly atypical cutaneous lesions. I recall a patient whose lesions were indistinguishable from granuloma annulare and another whose lesions looked almost like acrodermatitis chronica atrophicans. To repeat, a microscopic examination is essential, and even then only sarcoid structure can be diagnosed, not sarcoidosis.



Sternal preparation showing granuloma consistent with diagnosis of sarcoid

Lesions in the mucous membrane are often described, but in my material not so often seen. The question of tonsillar biopsy offers the objection that in pulmonary tuberculosis *tuberculoid infiltrate may be found in the* tonsils. Involvement of the larynx and the upper respiratory tract is apparently rare in sarcoidosis as contrasted with tuberculosis.

Lymph nodes and glandular enlargements vary greatly in size and extent of involvement. In my material they are not striking, but in the reported cases the finding is frequent. The parotid, submaxillary and lachrimal glands are often reported enlarged and the syndrome of Heerfordt is of particular interest because of the rapid and at times febrile course.

Various internal glands have been invaded with symptoms provoked because of interference with a gland's particular function, as when the pituitary or thyroid gland has been involved.

---

[4] Forssman, O.: Tuberculin Negative Cases of Erythema Nodosum and Erythema Multiforme, Acta med. Scandinav. **126**: 393, 1946.

[5] Van Buchem, F. S. P.: On Morbid Conditions of the Liver and the Diagnosis of the Disease of Besnier-Boeck-Schaumann, Acta med. Scandinav. **124**: 168, 1946.

The internal organs such as the heart, kidneys and spleen often take part in the process, but the contents of the thoracic cavity and the liver are most interesting because by means of x-ray or liver puncture one may obtain valuable evidence of the lungs and hilar glands. It need only be mentioned that here one may have lesions which are easily demonstrated and often present. Sarcoidosis involving the lungs can hardly be called a respiratory disease because as a rule it is symptomless, even though the lungs, pleura and hilar glands have extensive encroachment.

Van Buchem[5] performed liver punctures on 14 patients with sarcoidosis, results of whose hepatic function tests were normal. He found miliary sarcoid lesions in 11 of the specimens. Liver puncture offers another approach to the survey of the disease.

*Data on Patients with Proved Cases of Sarcoidosis**

Patient	Duration, Yr.	Age	Sex	Race	*Skin*	Nodes	Roentgenogram of Chest	Roentgenogram of *Bones*	Roentgenogram of *Bowel*	Tuberculin Reaction, *1:100*	Involvement of Ear, Nose or Throat	Brucella Skin Tests
P. C.	11	54	F	W	Atrophic type	Epitrochlear	Normal	Normal	Normal	Negative	Negative	Negative
E. W.	15	41	F	W	Typical	None	Hilar	Normal	Normal	Negative	Negative	Negative
L. W.	13	50	F	W	Typical	Axillary	Normal	Toes	Normal	Positive	Negative	2 in 4 positive
O. N.	15	51	M	W	Atrophic type	Axillary	Normal	Normal	Not done	Negative	Positive	2 in 4 positive
J. M.	10	40	M	W	Plaque	Axillary (1)	Normal	Normal	Not done	Negative	Negative	Negative
A. L.	16	62	F	W	Typical	None	Interstitial fibrosis	Normal	Gastritis; narrow terminal ileum	Negative (1:500)	Negative	Not done
E. H.	8	28	F	W	None	None	Normal	Normal	Regional ileitis	Negative	Negative	Negative
G. M.	3	26	F	W	None	None	Normal	Normal	Regional ileitis	Negative	Negative	Not done
R. C.	7	34	M	W	Typical.	Axillary	Hilar	Toes	Not done	Negative	Negative	Not done

Patient	Hemoglobin, Gm./100 Cc.	White Blood Cells	Monocytes, Percentage	Albumin, Gm./100 Cc.	Globulin, Gm./100 Cc.	Sedimentation Rate, Mm./Hr.	Biopsy	Comment	Response to Calciferol
P. C.	13.6	5,100	Normal	3.9	3.2	83	Tuberculoid	Cancer of uterus (treated)	Not apparent
E. W.	13.3	6,800	Normal	4.5	3.1	30	Tuberculoid	....	Not apparent
L. W.	13	3,900	6%	4.8	1.1	58	Tuberculoid	....	Not apparent
O. N.	15	5,800	9%	4.0	3.0	15	Tuberculoid	....	Not apparent
J. M.	15	3,700	Normal	4.5	2.8	6	Tuberculoid	....	Not apparent
A. L.	14	7,300	Normal	Not done	Not done	21	Tuberculoid	....	Not apparent
E. H.	9	6,400	2-23%	Not done	Not done	81	Tuberculoid (ileum)	Skin not involved	Not given
G. M.	13	7,150	Normal	Not done	Uot done	80	Tuberculoid (ileum)	Skin not involved	Not given
R. C.	14	7,500	7%	Not done	Not done	24	Tuberculoid	Cleared with no specific treatment: Mantoux reaction still negative 1:100	Not given

* There was no evidence of involvement of the eyes in any patient; general bacteriologic data indicated no abnormality; Brucella cultures were either negative or not done (patients A. L., G. M. and R. C.); Brucella agglutinations were negative or not done (patients A. L., G. M. and R. C.), and the urine of all patients was normal, as were the electrocardiograms.

ETIOLOGY

There is at present a choice of only two causes of sarcoidosis, the one being that the condition is some type of tuberculosis; the other that the disease has its own etiology. Since the theory of the tuberculous causation seems to have the most adherents, how or where is one to find the facts that finally will give irrefutable proof that the tubercle bacillus is the only cause of sarcoidosis?

Bacteriologists have searched for the cause of this disease in all of their accepted ways, and still the percentage of positive findings is much too low to be convincing. Direct methods, cultures and animal inoculations have all been tried. Special staining methods raise the percentage of positive findings a little, but on the whole attempts to incriminate the tubercle bacillus by bacteriologic means have been disappointing. Koch said that the indisputable proof of a tuberculous causation was to find the bacillus in the diseased tissue. Too few such searches have been made, and the newer methods of direct examination of excised, well identified, sarcoid lesions should be utilized.

The interpretation of histologic examination leaves much to be desired. A diagnosis of sarcoid structure can be made by this means, but the criteria on which sarcoidosis can be differentiated from tuberculosis, leprosy, brucellosis, foreign body reaction and other conditions have not been established sufficiently so that changes in the section under examination can be said to be exclusively sarcoidosis. The case reported by German[6] well illustrates this. His patient sustained an injury to the head when he fell against a canyon wall. Subsequently a tumor formed which was found microscopically to be of sarcoid structure about incorporated crystals proved to be silica. Roulet and Albertini[7] both have seen granulomas in brucellosis which were tuberculoid and could not be distinguished from sarcoid.

Neither the type of cells, the arrangement, the presence or absence of necrosis, nor the discovery of special bodies such as Schaumann[8] has found in his explorations makes it possible for a pathologist to say, "This is sarcoidosis and cannot be anything else!" When a section from a questionable case is compared with one from a positive case, it is readily seen how wide the boundary lines may be. The so-called epithelioid or naked tubercle really is not a tubercle. Certainly the large massive sarcoid structure found in true sarcoidosis is not the tuberculoid structure found in lupus vulgaris, but on the other hand areas can be found in lupus vulgaris that cannot be distinguished from sarcoidosis. Therefore the microscopic diagnosis must not be made on finding areas of massed epithelioid cells but on a survey of the entire section, and I want to repeat that the finding of an isolated so-called epithelioid tubercle, although it often is found, especially in lymph nodes, is a deceiving premise on which a diagnosis may rest. Classic sarcoidosis tissue is readily identified, but if there are observations which cast doubt on the diagnosis, it is best not to go beyond a descriptive and inclusive diagnosis. Much has been written about the age of the lesion, and still biopsies made on the same patient over a period of years have shown a surprising stability of structure. On the other hand, when a lesion is in a regressive stage, then the histology is much altered. Therefore it is not the age, but the stage of the lesion, that is important. To reiterate, before one makes a diagnosis on sarcoid structure he should demand a clinical review and weigh the evidence before making a decision.

---

[6] German, W. M.: Lupoid-Sarcoid Inducted by Foreign-Body (Silica). Am. J. Clin. Path. **10:** 254, 1940.

[7] Roulet and Albertini, in discussion on Zollinger and Meyenberg: Ueber eigenartige perivaskulare Granulomatose des Gehirns, Schweiz. med. Wchnschr. **72:** 826, 1942.

If histology were the only basis for alining sarcoidosis with some other known condition, then one could as readily decide that it was a form of leprosy as that it was a form of tuberculosis. As a matter of fact, leprosy produces a granuloma in the skin which resembles sarcoid more than any tuberculoderma does. Leprosy offers other analogous facts too. The slow onset, the various phases and the inability to find organisms in the tuberculoid variety are points in common; there are many arguments, however, against leprosy as a causative factor in sarcoidosis.

Since there are fairly accurate tests for brucellosis, Brucella melitensis may be eliminated as the cause of this condition. There are, however, a number of similarities between the two conditions, which somewhat strengthens the view that if the bacillus of brucellosis can produce so varied a syndrome as brucellosis, then a specific organism could readily provoke all the reactions that have been found in sarcoidosis.

If dermatologists, bacteriologists and pathologists cannot definitely decide about the tuberculous etiology of sarcoidosis, where may one expect to find help? I believe that it should come from the experts in tuberculosis. Can this array of findings which make up sarcoidosis be accepted as a type of tuberculosis? Does any known form of undisputed tuberculosis offer comparable findings? Mylius and Schürmann,[9] Pinner,[10] Hagn-Meincke[11] and others have compared sarcoidosis with noncaseating tuberculosis or with indolent tuberculosis, but patients with this condition have pulmonary tuberculosis which may and often does change in type and become one of the more serious forms of the disease. Furthermore, in patients with this chronic productive type of tuberculosis, even though there may occasionally be concomitant lesions, such as ocular or osseous lesions, they are not found with nearly the regularity that they are in patients with sarcoidosis; also the prognosis in patients with indolent tuberculosis rests largely on the course of events in the patient's life. Undue stress and strain, a concurrent infection or residence in an unfavorable climate may and often does bring about dire consequences, but patients with sarcoidosis do not seem to be so affected. If sarcoidosis is a form of tuberculosis, then the indolent form of tuberculosis so well described by Gloyne[12] best affords comparison; yet sarcoidosis is very different. Tuberculosis rarely if ever yields such extensive findings as does sarcoidosis. The tubercle bacillus seems to select its tissue and confine its ravages there. Patients with lupus vulgaris rarely have active glandular, osseous and pulmonary tuberculosis in addition to cutaneous lesions. Having a close association with Glen Lake Tuberculosis Sanatorium for a long period impressed me with the fact that patients with mixed tuberculosis are rare. The number of cases of pulmonary tuberculosis in which lesions of skin, bone or gland developed was comparatively small. A review of patients with sarcoidosis, on the other hand, reveals that almost all of them had disseminated lesions and that involvement of only one organ system was the exception. In this respect the two conditions are entirely different. Tuberculosis ignored progresses. An organized regimen, active treatment, awareness of the possibilities and cooperation are necessary to cure or check the disease. Sarcoidosis may be entirely ignored, and with few exceptions the patient does just as well, or better, than with medical intervention. There is an environmental and family factor in tuberculosis. Great stress is laid on finding the infecting source—the contact. Patients with sarcoidosis share their condition with no one in their immediate sphere. There are few contact cases. If the tubercle bacillus is the cause, can the patient with sarcoidosis render the bacillus noninfectious to others? It is hard for me to accept the tuberculosis theory of etiology.

The epidemiology and pathogenesis of tuberculosis have been the subject of a vast amount of research, and regardless of one's particular views certain well known facts have become established. For example, the changing clinical types, the effect of the times—the increase in tuberculosis in war-torn countries and the influence of organized control—but sarcoidosis goes serenely on in its own peculiar way.

Thanks to the work of Ghon and his pupils, the primary focus is accepted as the starting point of tuberculosis. Do patients with sarcoidosis have a primary lesion? If so, is it in the lung and if in the lung does it have the histology of sarcoid? Obviously these are difficult questions to answer. A number of years ago I wrote to Professor Ghon and asked whether they had ever encountered a primary focus which showed sarcoid structure. Dr. Rudolf Bezecny answered that they had not. This may not mean much, but if the patient with sarcoidosis has such unusual resistance to tubercle bacilli, is he born that way or does he acquire this reactional partial immunity? The power to suppress the tuberculin reaction must either be inherent or acquired if the cause of sarcoidosis is tuberculous. Surely the microbe does not explain this, for in cases in which the bacilli were found they have not been the attenuated types.

---

[8] Schaumann, J.: On the Nature of Certain Peculiar Corpuscles Present in the Tissue of Lymphogranulomatosis Benigna, Acta med. Scandinav. **106**: 239, 1941.

[9] Mylius, K., and Schürmann, P.: Universelle sklerosierende tuberkulöse grosszellige Hyperplasie, eine besondere Form atypischer Tuberkulose, Beitr. z. Klin. d. Tuberk. **73**: 166, 1929.

[10] Pinner, M.: Noncaseating Tuberculosis, Am. Rev. Tuberc. **37**: 690, 1938

[11] Hagn-Meincke, F.: Boeck's Sarcoid and Its Relation to Tuberculosis, Acta tuberc. Scandinav. **18**: 1, 1944.

[12] Gloyne, R.: Indolent Tuberculosis, Tubercle **27**: 106

No amount of conjecture will solve this problem. It must be approached with well directed research.

Dermatologists, and I believe oculists, have been all too willing to diagnose a variety of conditions on a purely morphologic and histologic basis as being tuberculosis. I need only to mention with what alacrity dermatologists diagnose rosacea-like (micropapular) tuberculid with no confirmatory evidence of tuberculosis.

Since pathologic reactions have been provoked by various agents which result in microscopic findings that are indistinguishable from sarcoid, the view that sarcoidosis is not a specific disease, but rather a type of response, has been accepted by certain observers. That histologic evidence characteristic of sarcoid may be found in many conditions is true, but patients who have the disease called sarcoidosis have other confirmatory manifestations, and all such patients have so much in common that to me it appears that there must be a common etiologic agent.

Tuberculosis, leprosy and brucellosis occur in various forms, and still there is always enough evidence so that the disease is diagnosed as such. Syphilis also is protean in its manifestations, but for this disease there are specific remedies and one sees this great variety of lesions respond to a single drug with equal rapidity. Another proof of its entity.

The Kviem test if perfected will be of great diagnostic value. It should be of immense value in investigating sarcoidosis. Especially should it help in excluding tuberculosis, if that is possible, but researches should be directed toward discovering an etiologic agent.

In order to procure a base line co-workers and I decided to hospitalize patients with proved cases of sarcoidosis and study them with all the means at our command.

What do we learn, then, from these findings? 1. The history throws no light on the onset or prodromal signs of this disease. 2. The patients all were in reasonably good health, although in 1 case (Mrs. W.) there were periods of ill health and these periods were associated with the appearance of new lesions in previously uninvolved areas. 3. Roentgenologic examination of the thorax, feet and hands yielded evidence of the disease in some cases and in these instances was of definite value in diagnosis. 4. The histology of cutaneous lesions was diagnostic and hence the more characteristic the lesions were, the more indubitable was the microscopic diagnosis. 5. Examination of material obtained by sternal puncture was valuable and in 1 instance showed evidence of granuloma that was consistent with the other findings but alone would not have permitted making an unequivocable diagnosis of sarcoidosis. 6. Extensive studies (Drs. Wesley Spink, Wendall Hall, A. I. Braude) failed to reveal any connection between sarcoidosis and brucellosis in 8 classic cases of sarcoidosis.

CONCLUSIONS

1. Sarcoidosis is the best term at present to designate this condition. Sarcoidosis usually involves a number of different tissues and the patient should always be examined for extensive distribution. The disease is usually benign in its course and more or less self limited. No treatment known to date brings about rapid disappearance of the lesions. Vitamin D_2 therapy, although worthy of more extensive trial, has not been nearly as effective as in lupus vulgaris. The cause is not yet known and the explanation for the anergy often present in this condition is not clear. Microscopic study of excised lesions permits a diagnosis of sarcoid structure, but the diagnosis of sarcoidosis must be based on the sum total of the evidence obtained in each case.

ABSTRACT OF DISCUSSION

Dr. Fred D. Weidman, Philadelphia: As usual, Dr. Michelson's presentation has been most lucid. His paper is comprehensive and closely reasoned. On the perennial question of nomenclature, I would accept the substitute of "sarcoidosis," provided it were established that every case of what we are pleased to call sarcoid was a widely disseminated disease. I wonder if that is quite the case. I feel sure that the majority of cases of Boeck's sarcoid (what we call that) do not present demonstrable evidence of widespread dissemination. Time and time again in our society presentations, the report is that the bones were examined roentgenologically; the mediastinum did not show any hilar enlargement; the lymph nodes were not enlarged. In other words, it appears that the disease was not widely disseminated. I would prefer until that time has arrived to stick to sarcoid. After all, dermatologists have priority in the matter. Dermatologists used sarcoid before the internists used sarcoidosis. Of course, when the cause is discovered we may think differently. The second point is the matter of the analogous diseases which Dr. Michelson had to exclude. He mentioned brucellosis, and that is one of the highest points in his presentation. He has excluded that as the explanation of the sarcoid reaction. I would like to add one more, namely, leishmaniasis. I have seen a sarcoid type of reaction in leishmaniasis. As to the American Negro, I agree with him entirely. Dr. Klauder and I were careful when we reported a very early case of this disease to give it a different title from sarcoid. We called it "Multiple Sarcoid-like Granulomas of the Skin of Undetermined Nature" (Arch. Dermat. & Syph. **13:** 374-379 [May] 1926). Finally, the histology: What Dr. Michelson said about sarcoid holds good for a host of other dermatologic conditions. There are many expressions of change of other diseases in which a given picture in a given subject will not be diagnostic. That goes for syphilis, tuberculosis, many inflammatory and other dermatoses. In syphilis it is only occasionally that there are enough criteria whereby we can state that the dominant character favors a diagnosis of syphilis.

Dr. Arthur C. Curtis, Ann Arbor, Mich.: Ray and Shipman in 1923 showed that epithelioid cell tubercles could be produced with chloroform-soluble lipins of the tubercle bacilli. Defatted and chloroform-soluble lipins from grass and colon bacilli produced the same type of lesions; the former associated with many giant cells. Florence Sabin, while observing the cellular changes in the milk spots of the omentum of rabbits, saw monocytes and clasmatocytes pick up injected phosphatide and become transformed into epithelioid cells and Langhans giant cells. Her studies also showed that animals, given antigenic amounts of the phosphatide, would develop antibodies to it. With Smithburn, she later showed that when the typical cellular response to the phosphatide was produced—and she thinks the epithelioid cell reaction can be called the phosphatide phase of the disease—hypersensitiveness to tuberculin did not occur. This may have some bearing in the positive anergy reaction so often seen in sarcoidosis. W. M. German reported a case of sarcoid-like lesion appearing in an old scar fourteen years later, in a mountain climber who fell and injured his scalp. He excised the tumor. Pathologic examination of the lesion showed whorls and masses of epithelioid cells and giant cells of the foreign body type. In the latter, particles of silica were seen, and he postulated that silica was the causative factor. He suggested that perhaps silicosis could produce a foreign body reaction similar to sarcoid. The late Dr. Gardner at Saranac Lake continued this work and showed that the injection intravenously of silica dioxide produced lesions in liver, bone and lymph nodes indistinguishable from tuberculosis. When it was inhaled, similar lesions occurred in the lungs. J. T. Fallon, in Canada, who continued the work of Gardner, found exactly the same thing that has been described by Gardner and was impressed by the amount of phospholipid associated with lesions in the lungs produced by silica dioxide which had been inhaled by rabbits. The silica-free phosphatide was extracted from the lungs and then introduced into the lungs of fresh animals. The same epithelioid cell response occurred. From this work one might infer that the naked tubercule of epithelioid cells characteristic of sarcoid may have several etiologies, but that behind its production lies a fat compound of the phosphatide type. In the work reported by Drs. Grekin and Taylor and myself in the *Journal of Investigative Dermatology*, Sept. 1947, on the treatment of sarcoidosis with calciferol and dihydrotachysterol (Curtis, A. C.; Taylor, H. and Grekin, R. H.: Sarcoidosis: I. Results of Treatment with Varying amounts of Calciferol and Dihydrotachysterol, J. Invest. Dermat. 9:131, 1947) it is our belief that these agents operate, not through their effect on calcium, but because they have some effect on the phosphorus of the phosphatide, which we think is important in the development of sarcoid lesions.

Dr. Henry E. Michelson, Minneapolis: I think if Dr. Weidman wishes to retain the term "sarcoid" that it should apply only to a local lesion, but if one looks long enough and far enough, one is apt to find other lesions, and therefore I prefer the term "sarcoidosis." As to the experimental work that Dr. Curtis mentioned, one must remember that in such experiments one produces lesions, not the disease. Sarcoidosis as a widely spread disease is one thing and a local lesion produced experimentally is another. German's case, in which silicate was the irritant, was interesting but it only emphasized what Dr. Oppenheim and others have brought out before, that local irritants, insoluble and unabsorbable, may produce this type of reaction. In a recent issue of *Acta dermato-venereologica* a fungoid cause for sarcoidosis was proposed, and it is worthy of consideration. About vitamin D$_2$, one must remember that almost all good drugs may be poisons when used in high enough dosage. Since sarcoidosis is a comparatively benign disease, I would be loath to use toxic doses of vitamin D in an effort to make lesions disappear.

Innervation of the Carotid Sinus.—There are four nerves which contribute to the innervation of the sinus and adjacent carotid body, namely, the glossopharyngeal, vagus, cervical, sympathetic, and hypoglossal. The branch to the hypoglossal is inconstant and the part played by this nerve is probably not important. The other three nerves show considerable variation in their gross anatomic arrangements but great constancy in their connections to the carotid sinus and the intercarotid plexus. Embryologically the mesoderm of the third branchial arch artery and the ectoderm of the glossopharyngeal nerve possess an early juxtaposition in the region which is the anlage of the carotid body and carotid sinus; elements from the sympathetic and the vagus enter only at a comparatively late stage of development. From anatomic dissection it has been shown that a distinct and constant branch of the glossopharyngeal nerve connects with the sinus and intercarotid plexus. The importance of this nerve is supported by its striking constancy in all species of animal. Ray, S., and Stewart, J.: (Surgery,) March 1948.

Clinical Notes, Suggestions and New Instruments

RELIEF OF MORPHINE ADDICTION BY PREFRONTAL LOBOTOMY

T. H. MASON, M. D. and W. B. HAMBY, M. D.

Buffalo

Since the development of psychosurgery, initiated by Egas Moniz[1] in 1935 and later advanced by Freeman and Watts[2] in the United States, therapeutic results have been attained in mainly two fields of endeavor; one in psychiatry, the other directed toward the relief of intractable pain. This case report analyzes a heretofore unrecorded situation of an unusual type of chronic pain associated with the habitual use of tremendous quantities of morphine sulfate, being relieved by prefrontal lobotomy.

REPORT OF CASE

Mr. A. C., a draftsman aged 39 years, was admitted to the Buffalo General Hospital on June 16, 1947. Three years earlier he had sustained a laminectomy for spinal epidural abscess extending from the eighth to the twelfth dorsal vertebra. He survived with spastic paraplegia, a sensory level reaching approximately the nipple line and sphincter difficulty. Over the intervening three years he had been nursed efficiently by his wife. About six months after discharge from the Buffalo General Hospital he first began to complain of excruciating pain which he described as an unbearable "curling of the toes." Later there developed sensations such as "squeezing of the testicles, clawing of the perineum," and intense "burning in the rectum." These were controlled by hypodermic injections of morphine sulfate. Increment from time to time was necessary to alleviate his pain. Equally harassing was his fear of failure to receive medication, so that about half of each interval was spent in reminding his wife not to forget the injection. Finally he was receiving 42 grains (2.73 Gm.) of morphine sulfate daily.

Examination revealed a pleasant, young-appearing, 42 year old man who seemed comfortable and well adjusted to his situation. Patchy leukoderma was seen over the right lower jaw. There was full range of motion of the upper extremities, and motor power was good. Total areflexia was present below the eighth dorsal vertebra with flaccid paraplegia and bilateral foot drop. Anesthesia extended downward from the nipple line, above which was a 3 inch (7.6 cm.) band of hyperesthesia. The anal sphincter was atonic, and catheterization was required to empty the bladder.

He was made comfortable by the accustomed dose of morphine, 7 grains (0.45 Gm.) every four hours. Without this he complained bitterly of pain and became irritable and restless. No earnest attempt was made to withhold the opiate because of the fear of severe withdrawal symptoms. The bladder was controlled by tidal drainage and small trophic ulcers were given special attention. Because of the good results from prefrontal lobotomy for relief of intractable pain obtained by Poppen[3] and ourselves, this procedure seemed desirable here.

On the third hospital day a prefrontal lobotomy was performed through bilateral coronal parasagittal trephine openings. During the immediate postoperative period the patient twice was given morphine sulfate, 1½ grains (0.09 Gm.) and later two individual doses of ½ grain (0.03 Gm.) each, for restlessness. After thirty postoperative hours had passed, the patient seemed to be doing well, and morphine was withdrawn completely. He showed the usual immediate effects of lobotomy, such as apathy, unconcern, disorientation, tactlessness and loss of initiative. His appetite increased. The complaint of pain in the head was expressed occasionally, but this was fleeting and

---

From the Buffalo General Hospital and University of Buffalo School of Medicine.

[1] Moniz, E.: Les premieres tentatives operatoires dans le traitement de certaines psychoses, Encephale 31: 1, 1936.

[2] Freeman, W., and Watts, J. W.: Prefrontal Lobotomy in Agitated Depression: Report of a Case, M. Ann. District of Columbia 5: 326, 1936.

[3] Poppen, J. L.: Prefrontal Lobotomy for Intractable Pain, Lah Clin Bull. 4: 205, 1946.

did not seem to disturb him. Injections of morphine were forgotten. He toyed and fussed with whatever was within reach. He became progressively more rational and conversational. Memory was good though emotional affect was lost. The patient remained moderately overactive and was discharged on the eleventh postoperative day in good condition.

Five months have passed since the operation, and he requires no opiates. He is rather comfortable and about to begin a course of paraplegic rehabilitation, toward which he was refractory prior to operation.

COMMENT

Dual effects were attained in this case of cord stump pain associated with severe narcotic addiction. The unbearable sensations which had been referred to anesthetic zones no longer disturbed him. His crying need for opiate and hypodermic relief was forgotten; all anxiety, emotion, foresight and insight in relation to pain were lost. Amnesia for the surgical treatment was present, but this has been a frequent result of disruption of frontal association and projection pathways. A small amount of morphine was given immediately after the operation because of apprehension in regard to withdrawal symptoms. As the patient began to show a good recovery on the second postoperative day, it was decided to withhold morphine completely, undesirable effects being watched for.[4] Severe withdrawal symptoms such as diarrhea, loss of weight and persistent vomiting did not occur, nor did the more moderate abstinence effects, dilated pupils, anorexia and gooseflesh. On the first and third postoperative days intermittent tremors were present in the left shoulder and hand. These were brief and sporadic, and may have been associated with the removal of morphine. Restlessness and overactivity that were present have been seen both in the abstinence syndrome and after lobotomy, so they could not be dissociated. It is common for addicts from whom narcotics have been withheld to manifest ily fever, increased respiratory rate, insomnia, yawning, crimation and diaphoresis.[4] These were not experienced by e patient.

There has been considerable discussion as to whether the so-called withdrawal symptoms are organic or psychic in origin. Light and his co-workers[5] in 1929 seemed convinced that there was an organic basis for the syndrome so commonly found. Goodman and Gilman[6] stated that symptoms start within four to twelve hours after the last dose of morphine is omitted and reach their peak in ninety-six, and then decline. This period coincides with our patient's slight tremors in the left upper extremity and restlessness.

This evidence would suggest that withdrawal symptoms are largely within the psychic sphere. Lobotomy, which nullifies emotional tension, in this case removed the psychologic necessity for morphine, leaving only the organic component for analysis. The only objective organic effect was mild tremor.

Davis and Martin[7] have described recently a type of diffuse burning pain in spinal lesions which is not relieved by cordotomy. It is thought to be transmitted over autonomic pathways to enter the cord at various levels. Our patient's pain seems to fall within this category. It is now fairly well accepted that intractable pain may be relieved by severing the frontal association and projection pathways.[3] This has been done with good results in cases in which the patient had been accustomed to therapeutic doses of opiates for the relief of chronic, unbearable pain. By personal correspondence[8] and review of the medical literature, we have found no previous record of the cure of morphine addiction by prefrontal lobotomy. It is not implied that psychosurgery should be resorted to in uncomplicated cases of opiate addiction. When addiction is associated with possible organic cause for pain and cannot be broken by medical or psychiatric therapy, lobotomy may prove useful. The results here suggest that withdrawal symptoms are for the most part within the psychic sphere, although no general conclusions can be reached from a single case study.

SUMMARY

An unusual type of persistent pain and an associated severe morphine addiction in a paraplegic patient were relieved by prefrontal lobotomy. Prompt removal of the drug on the second postoperative day produced relatively no withdrawal symptoms. It is suggested that the latter group of symptoms are largely psychic.

ADDENDUM

Since this article was submitted for publication it has come to our attention that a case reported by J. L. Poppen in the *Lahey Clinic Bulletin* (4:205, 1946) had relief of morphine addiction and intractable facial pain.

---

[4] Himmelsbach, C. K.; Eddy, N. B., and others: Clinical Studies of Drug Addiction, Pub. Health Rep., 1938, supp. 138, pp. 114-129.

[5] Light, A. B., and Torrance, E. G.: Opium Addiction, Arch. Int. Med. **44**: 376 (Feb.) 1929.

[6] Goodman, L., and Gilman, A.: Pharmacological Basis of Therapeutics, New York, The Macmillan Company, 1941, p. 214.

[7] Davis, J., and Martin, J.: Studies upon Spinal Cord Injuries, J. Neurosurg. **4**: 6, 1947.

[8] Freeman, W.: Personal communication to the authors.

Council on Physical Medicine

REPORT OF THE COUNCIL

The Council on Physical Medicine has authorized publication of the following article:

HOWARD A. CARTER, *Secretary.*

EXPERIMENTAL PRODUCTION OF CANCER OF THE SKIN BY ULTRAVIOLET RADIATION

Its Implications in the Use of Sunlamps

W. W. COBLENTZ, Ph.D.
Washington, D. C.

Some fifteen years ago when the Council on Physical Medicine first undertook the formulation of specifications for accepting so-called sunlamps, qualitative experimental data were available to indicate the possibility of producing cancer on the ears of mice by excessive, often repeated doses of ultraviolet radiation. It was also known qualitatively that relatively small doses of ultraviolet radiation of wavelengths shorter than 2,800 angstrom units produce keratitis and conjunctivitis.

The sunlamps which were then on the market ranged from nondescript products to hot quartz mercury arc lamps, which are suitable only for professional use. Hence, after consultation with recognized authorities regarding the potential hazard of initiating cancer of the skin and the unquestionable hazard of causing conjunctivitis, and also with the Food and Drug Administration on what constitutes misbranding, standards for the acceptance of sunlamps[1] were promulgated.

In recent times quantitative data have been published on the spectral quality and total intensity of ultraviolet radiation required to produce erythema, keratitis, cancer of the skin and the like. The energy relations involved in these physiologic reactions form an interesting study, the results of which I now summarize.

Erythema.—A minimum perceptible erythema is defined as a reddening of the skin that disappears in fifteen to twenty hours after irradiation.

The erythema test now in common use is a quick, safe method of determining skin tolerance, which is especially important before irradiating large areas of a (blond) nontanning skin.

The spectral range of ultraviolet wavelengths in sunlight that produce erythema extends from about 2,900 to about 3,200 angstroms. To qualify as a sunlamp an artificial source must emit a specified minimum amount of ultraviolet radiation in this wave band.[1] This correlation was worked out about fifteen years ago by irradiating untanned persons with skin of average pigmentation.[2]

---

[1] Acceptance of Sunlamps, J. A. M. A. **102**: 42 (Jan. 6) 1934; **114**: 325 (Jan. 27) 1940; **118**: 298 (Jan. 24) 1942; revised. 1947.

To produce a minimum perceptible erythema on exposure to midsummer, noon hour sunlight, at sea level, requires from 1 to 2 million ergs/sq. cm.,[3] depending on the dryness of the skin.

The ultraviolet energy required to produce a minimum perceptible erythema, using sunlamps of types S 1 and R S, averages about 1,100,000 ergs/sq. cm.

In my tests of several makes of type R S sunlamps an exposure of three times the minimum perceptible erythema dose did not produce burns, but it left a tan that remained for one to two months.

As described elsewhere,[4] in sunlamps of types S 1 and R S the biologically effective radiation is emitted mostly in the intense emission lines of the high vapor pressure mercury arc, of wavelengths 2,967, 3,024 and 3,134 angstroms; and while the spectral energy distribution throughout the whole spectrum (ultraviolet, visible, infrared) is not closely similar to that of solar radiation, the same biologic effects are obtained. This is because the discrete emission lines happen to occur in the proper wavelengths and intensities to produce the same biologic effect as the more continuous but less intense spectrum of ultraviolet radiation that is integrated over the wave band extending from about 2,900 to 3,200 angstroms in sunlight at sea level.

Cancer of the Skin.—In determining the band of wavelengths specific in producing cell changes that lead to cancer on the ears of white mice Rusch, Kline and Baumann [5] used low vapor pressure cold quartz lamps (radiation of wavelength 2,537 angstroms) and high vapor pressure hot quartz mercury arc lamps, in which the filtered, "midultraviolet" radiation consisted principally of wavelengths 2,967, 3,024 and 3,132 angstroms, that occur in spectral quality but not necessarily in relative spectral intensity in types S 1 and R S sunlamps.

Data are given on the results of a daily carcinogenic dose of 35.7 million ergs/sq. cm. of "ultraviolet energy" (wavelengths 2,000 to 4,000 angstroms). This was equivalent to 6 to 8 million ergs/sq. cm. of "midultraviolet" radiation, or six to eight times the minimum perceptible erythema dose tolerated on the human skin, and equivalent to a second or third degree erythema when exposed to a type S 1 or R S sunlamp. Certainly such a dose could not be repeated day after day on the human skin.

They reported that, using carcinogenic amounts of radiant energy, well defined erythema occurred early in the experiments but subsided somewhat after three or four weeks. In some instances the ears of the white mice became ragged or stubby, but that did not seem to affect the incidence of cancer.

After continuing the exposures for one hundred and thirty-five days 44 per cent of the mice in group I (24 mice in a group) and 55 per cent of those in group II had tumors.

The results pertinent to the present discussion are that the "midultraviolet" energy (essentially of wavelengths 2,967, 3,024 and 3,132 angstroms) necessary to produce carcinogenesis in 50 per cent of the group of mice ranged from 672 to 2,360 million ergs/sq. cm. over the irradiation period of one hundred and thirty-five days, with a mean value of 1,598 million ergs/sq. cm. The incidence of tumors ultimately reached 70 per cent after one hundred and seventy days of irradiation.

The daily exposures to cold quartz mercury arc radiation (principally of wavelength 2,537 angstroms) for a much longer period and a much larger total dosage (5,712 million ergs/sq. cm.) produced no tumors. In contrast, as will be noted presently, a momentary exposure to only a small fraction of this amount of radiation from a cold quartz lamp is sufficient to cause conjunctivitis and keratitis.

By using these enormous doses of ultraviolet radiation, frequently applied, it was possible to show which particular band of wavelengths is specific in initiating cell changes that lead to cancer. In this respect it is an extremely important contribution to science.

The concomitant physiologic and photochemical reactions that are produced on much smaller doses of ultraviolet radiation of these same wavelengths will now be summarized.

Ultraviolet Radiation Therapy in Human Rickets.—An important use of a sunlamp is in a children's playroom, for the prevention of rickets. When the type S 1 sunlamp was first introduced, Gerstenberger and Russell [6] studied its efficiency as an antirachitic factor. For this purpose 2 (3 at the start) rachitic patients were exposed once a week, front and back, to a type S 1 sunlamp for a sufficient time to produce a definite erythema. Two of the infants were Negro and 1 was Italian. In other words, the skin was pigmented and presumably tolerated a greater dosage than could be given to a blond skin.

None of these patients showed progressive healing at the beginning of the treatment by ultraviolet radiation. Two weeks after treatment was begun (after two irradiations) the roentgenograms showed the beginning of healing, which was complete in five weeks in the infant with moderate rickets and in seven weeks in the (white) infant having severe rickets.

In other words, of the 2 patients for whom complete records were obtained, 1 had received five and the other seven irradiations that produced a definite erythema, which, according to the description of the authors, was an exposure of about two and one-half times as long as that required to produce a minimum perceptible erythema now commonly used as a maximum exposure.

From this I deduce that the single dose was about 2 to 2.5 million ergs/sq. cm., or a total of 10 to 12.5 million ergs/sq. cm. in the five treatments of the infant having moderate rickets and a total of 14 to 17.5 million ergs/sq. cm. during the seven irradiations of the infant having severe rickets.

In contrast, as previously described, using filtered radiation from a hot quartz mercury arc lamp, of wavelengths 2,894, 2,967, 3,024 and 3,132 angstroms, the total ultraviolet energy used in producing tumors on the ears of 50 per cent of a group of white mice was roughly one hundred and fifty to two hundred times the energy used in curing rickets in children with ultraviolet radiation from a type S 1 sunlamp emitting the same wavelengths and having, presumably, closely the same relative spectral intensities as used in the carcinogenic experiments.

---

[2] Coblentz, W. W.; Stair, R., and Hogue, J. M.: Tests of a Balanced Thermocouple and Filter Radiometer as a Standard Ultraviolet Dosage Intensity Meter, Bur. of Stand., J. Research 8: 759 (June) 1932.

[3] This is an abbreviation for the cumbersome "erg seconds per square centimeter."

[4] Coblentz, W.W.: Sources of Ultraviolet and Infrared Radiation Used in Therapy, J.A.M.A. 132: 378-387 (Oct. 19) 1946.

[5] Rusch, H. P.; Kline, B. E., and Baumann, C. A.: Carcinogenesis by Ultraviolet Rays with Reference to Wavelength and Energy, Arch. Path. 31: 135-146 (Feb.) 1941. See their paper for bibliography of earlier work.

[6] Gerstenberger, H. J., and Russell, G. R.: Sunlight Type S-1 Lamp (G. E.) Therapy in Human Rickets and Rachitic Spasmophilia, J. A. M. A. 94: 1049-1050 (April 5) 1930.

Subsequent investigations by Gerstenberger and Horesh[7] and by Knudson[8] show that such heavy doses of ultraviolet radiation are not necessary, especially to prevent rickets. Moreover, infrequent irradiation seems to permit regeneration of injured tissue, if any injury occurs.

Pathologic Effects of Ultraviolet Radiation on the Eye.—In their investigations of the effect of ultraviolet on the eye Verhoeff and Bell[9] used heterogeneous radiation from a hot quartz and a magnetite arc lamp. Exposures were made on the eyes of rabbits and monkeys and on one human eye.

They found that the liminal exposure capable of producing photophthalmia to the extent of conjunctivitis accompanied by stippling of the cornea, in terms of ultraviolet radiation of wavelengths shorter than about 3,050 angstroms (determined by a filter method), was approximately 2 million ergs/sq. cm. If a factor is applied to include the recently determined[10] spectral keratitic response to an equal energy stimulus, their value is reduced to less than 1 million ergs/sq. cm.

In recent times, in connection with an investigation of injury to the eye from ultraviolet radiation in arc welding (using 300 to 400 amperes) Kinsey, Cogan and Drinker[11] found that the energy necessary to produce keratitis in man by ultraviolet radiation is approximately two thirds that required in rabbits.

On exposure of human beings at a distance of 7 feet (213.36 cm.) from a 300 ampere arc they found that ocular lesions were produced in thirty seconds. From their intensity measurements, made with a tantalum photocell calibrated against a cold quartz mercury arc lamp, I deduce that the ultraviolet energy (heterogeneous iron arc radiation of wavelengths shorter than 3,000 angstroms) required to produce keratitis was about 45,000 ergs/sq. cm. of equivalent 2,537 angstrom radiation. This value seems extremely low. It is important to note, however, that the uncomfortable gritty sensation caused by stippling of the cornea and by conjunctivitis is felt after much shorter exposures and lower intensities than those used in the herein described experiments on the eyes of animals. This I know from numerous personal experiences extending over a period of more than three decades, when ultraviolet radiation from a hot quartz mercury arc lamp was sometimes accidentally flashed back of my spectacles, causing a mild conjunctivitis on the outer corner of the eye.

An important paper by Cogan and Kinsey[10] gives the spectral keratitic reaction which requires the least energy (150,000 ergs/sq. cm.) using homogeneous radiation of wavelength 2,880 angstroms, in comparison with 180,000 ergs/sq. cm. to produce a minimum perceptible erythema with a wavelength of 2,967 angstroms.[2]

Using homogeneous radiation of wavelength 2,520 angstroms, 600,000 ergs/sq. cm. was required to produce a threshold keratitic reaction, in comparison with about 365,000 ergs/sq. cm., in summer and 750,000 ergs/sq. cm. in winter[2] to produce a minimum perceptible erythema with radiation from a cold quartz lamp emitting the same wavelength, 2,537 angstroms.

In practice the erythema produced by this amount of radiation of wavelength 2,537 angstroms is so evanescent (observable for only a short time, some three hours after irradiation) that easily twice that amount of radiation is applied to get a definite (minimum perceptible erythema; one that lasts ten to fifteen hours) reddening of the skin of average pigmentation, with no ill effects. On the other hand, photophthalmia is a painful experience with no factor of safety from injury, on overexposure.

These data show that practically the same amount of energy of wavelength 2,537 angstroms causes photophthalmia as is required to produce a minimum perceptible erythema on untanned skin. Hence, in irradiating the body with the cold quartz mercury arc lamp, unless eye-protective glasses are worn there is no factor of safety between a dose giving minimum perceptible erythema and photophthalmia consisting of conjunctivitis accompanied by stippling of the cornea.

Other objectionable features (such as deactivation of ergosterol) in using ultraviolet radiation of wavelengths shorter than about 2,800 angstroms in the home without the supervision of an experienced technician are summarized elsewhere.[12]

In a recent paper entitled "Ultraviolet Action Spectra," presented at the Chicago meeting (May 18 to 22, 1947) of the Federated Societies of Experimental Biology, Bachem[13] criticizes the Council on Physical Medicine for accepting sunlamps for home use without medical supervision, his objection being that they contain a "spectral range which permits easy burning and blistering and may produce skin cancer."

In his opinion "the proper spectrum for home lamps should contain the 2,600 and 3,600 angstrom areas without the 3,000 angstrom range." He does not consider the hazard of causing keratitis and conjunctivitis by radiation of wavelengths shorter than 2,800 angstroms a problem that (beginning with Louis Bell[9]) has claimed my attention for more than three decades in connection with the protection of industrial workers in electric welding and the like.

The only practical source that is available to emit the short ultraviolet wavelengths suggested by Bachem[13] is the low vapor pressure cold quartz mercury arc lamp with a strong emission line at 2,537 angstroms, which, as is well known, constitutes about 98 per cent of the total biologically effective radiation of 3,132 angstroms and shorter wavelength.[14]

To use ultraviolet radiation of these short wavelengths in so-called "home lamps" because they do not initiate cell changes that may perhaps produce cancer is impracticable because of the danger of causing photophthalmia. This is a certainty as just noted, unless glasses are worn, which is not enforceable in the home. On the other hand, from the foregoing analysis of the data on the excessive doses of ultraviolet used to incite cancer of the skin, that hazard seems potential.

---

[7] Gerstenberger, H. J., and Horesh, A. H.: The Cure of Infantile Rickets with Tungsten Filament Radiation, J. A. M. A. **97**: 766-770 (Sept. 12) 1931.

[8] Knudson, A.: Rickets: Comparative Value of Several Light Sources for the Cure and Prevention, Am. J. Dis. Child. **44**: 531-541 (Sept.) 1932.

[9] Verhoeff, F. H., and Bell, L.: The Pathological Effects of Radiant Energy on the Eye, Proc. Am. Acad. Arts & Sc. **51**: 630-793 (July) 1916. Includes a very complete bibliography.

[10] Cogan, D. G., and Kinsey, V. E.: Action Spectrum of Keratitis Produced by Ultraviolet Radiation, Arch. Ophth. **35**: 670-677 (June) 1946.

[11] Kinsey, V. E.; Cogan, D. G., and Drinker, P.: Measuring Eye Flash from Arc Welding, J. A. M. A. **123**: 403-404 (Oct. 16) 1943.

[12] Coblentz, W. W.: The Physical Aspects of Ultraviolet Radiation in Vitamin-D Therapy, in The Vitamins, Chicago, American Medical Association, 1939, pp. 541-554; J. A. M. A. **111**: 419-423 (July 30) 1938. See extensive bibliography.

[13] Bachem, A.: Ultraviolet Action Spectra, Federation Proc. **6**: 71 (March, pt. 2) 1947.

[14] Such lamps, in quartz, generate an objectionable amount of ozone.

It is not my desire to belittle the fact that ultraviolet radiation of wavelengths 2,900 to 3,200 angstroms can be an inciting agent, an irritant, when too frequently applied to the skin in excessive doses. I agree with Blum[15] that, while it is unwise to apply to man these findings of cancer of the skin produced on laboratory animals, it is also unwise to minimize the possibility that cancer of the human skin may result from excessive ultraviolet irradiation.

However, ultraviolet lamps and so-called sunlamps have been in indiscriminate use for over two decades; and if there is a latent period in the development of cancer of the skin, no published reports seem to be forthcoming to indicate that irradiation with such lamps, long ago, was the initial cause. Now that more is known about dosage this potential hazard should become less, as it no doubt will with the increasing indifference to high pressure sales promotion of sunlamps and the waning fad of excessive sun bathing.

Council on Foods and Nutrition

This paper, prepared at the request of the Council on Foods and Nutrition, is one of a series which will appear in THE JOURNAL. The entire series will appear later in book form as the Council's Handbook of Nutrition.

JAMES R. WILSON, M.D., *Secretary.*

FOODS OF PLANT ORIGIN

LEONARD A. MAYNARD, Ph.D.
and
WALTER L. NELSON, Ph.D.
Ithaca, N. Y.

Over 50 per cent of the American diet consists of foods of plant origin. Indirectly as foods for animals, plant products make an additional contribution to the human diet through their influence on the nutritive value of animal products.

In discussing nutritive values, it is necessary to make use of certain average figures for nutrient composition. Foods of plant origin are subject to rather wide variations in composition as influenced by genetic, soil and climatic factors. It is beyond the scope of this article to consider these factors. Their importance is illustrated by the reports of a number of investigators.[1] Some of the factors influencing mineral composition have been reviewed by Beeson.[2] Fortunately the consumer seldom gets his supply of a given food from a single agricultural source, and thus the significance of the wide variation in the composition of crops differently produced is not nearly so great as the individual values might suggest. There are also variations in foods as consumed caused by processing, storage and cooking factors. In the present article attention is called to these factors if they have a particular bearing on the significance of the average values cited. For convenience of discussion, the foods of plant origin are grouped as follows: cereals; legumes and nuts, potatoes, other root crops, tomatoes, leafy vegetables, miscellaneous vegetables, fruits, sugar, syrups and molasses and vegetable oils.

CEREALS

Under cereals are included the cereal grains and their products, including flour, bread, breakfast foods, crackers, cookies, pastry and macaroni. Because of the low cost of cereals in relation to most other foods, their consumption is largest among the low income groups. The importance of these foods in the diet has been set forth editorially in THE JOURNAL[3] as follows:

> The cereal grains are the backbone of the nutrition of most of the races of the earth. They are, as a rule, the cheapest sources of food fuel; so that corn, wheat, rice, rye, barley and oat kernels are to be found constituting a third or often much more of the calory intake of the millions of persons involved.

Cereals also provide a third or more of the protein of the American diet. While this protein is not so high in biologic value as that of animal products, combinations of cereal and animal protein provide a diet of excellent protein quality. Important amounts of phosphorus, iron, copper and other minerals and of certain vitamins are supplied by cereals. Generalizations here are of limited value, however, because of the differences among cereals and the losses which result from milling.

Wheat.—Wheat is by far the leading cereal in the diet in the United States, furnishing approximately 25 per cent of the total calories consumed. The total per capita consumption of flour for 1945 is estimated at 164 pounds (74 Kg.), 97 per cent of which was the milled product, leaving less than 5 pounds (2 Kg.) as whole wheat or graham flour. The consumption of wheat breakfast foods approximated 1½ pounds (0.7 Kg.) per capita. The proximate composition of the flours, as listed by Chatfield and Adams,[4] is presented in table 1.

TABLE 1.—*Proximate Composition of Whole Wheat and of White Flour*

	Protein, Percentage	Fat, Percentage	Carbohydrates, Percentage	Crude Fiber, Percentage
Wheat flour, graham.....	13.6	2.0	72.4	1.8
Wheat flour, patent.......	10.8	0.9	75.9	0.3

It is clear that wheat makes a substantial contribution to the protein needs of the diet. Using the percentage figure for patent flour, one may calculate that the average daily consumption of 6.8 ounces (225 Gm.) of flour supplies 22 Gm. of protein daily, or nearly one third the daily allowance. Whole wheat contains more protein than white flour, and its protein has a higher biologic value, but when white flour is supplemented with milk, eggs or meat a protein mixture of high biologic value results. The much lower fiber content of patent flour reflects the removal of the bran in milling. While bran contributes laxative qualities to the diet, it is poorly digested and may be somewhat irritating to the mucous membranes of the digestive tract. The physiologic effects of bran have been reviewed by the Council on Foods and Nutrition.[5]

---

[15] Blum, H. F.: Photodynamic Action and Diseases Caused by Light, New York, Reinhold Publishing Corporation, 1941, p. 254.

[1] Chatfield, C., and Adams, G.: Food Composition, in Food and Life: Yearbook of Agriculture, Washington, D. C., Government Printing Office, 1939, p. 272. Hamner, K. C., and Maynard, L. A.: Factors Influencing the Nutritive Value of the Tomato, Miscellaneous Publication 502, United States Department of Agriculture, 1942. Scott, G. C., and Belkengren, R. O.: Importance of Breeding Peas and Corn for Nutritional Quality, Food Research **9**: 371 (Sept.-Oct.) 1944.

[2] Beeson, K. C.: The Mineral Composition of Crops with Particular Reference to the Soils in Which They Are Grown, Miscellaneous Bulletin 369, United States Department of Agriculture, March 1941.

[3] The Cereals in Nutrition, editorial, J. A. M. A. **95**: 1101 (Oct. 11) 1930.

[4] Chatfield, C., and Adams: Proximate Composition of American Food Materials, Circular 549, United States Department of Agriculture, June 1940.

[5] The Nutritional Significance of Bran, report of the Council on Foods, J. A. M. A. **107**: 874 (Sept. 12) 1936.

Several reports[6] have indicated that the calcium, phosphorus and iron of whole wheat flour are poorly utilized and therefore the higher concentration of these nutritents in the whole wheat flours are for the most part an apparent and not a real benefit.

In table 2 are presented the vitamin and mineral values of whole wheat and white flour and, for comparative purposes, the enrichment levels of white patent flour. These levels are based on recommendations of the National Research Council and were compulsory under War Food Order No. 1 of the Federal Security Administration until Oct. 25, 1946. At present (1947) these levels are required by legislation in nineteen states and Puerto Rico and Hawaii. The values for thiamine, riboflavin, nicotinic acid and iron are taken from Tables of Food Composition.[7] Those for pantothenic acid and pyridoxine were supplied by Elvehjem.[8]

The large milling losses of vitamins and minerals are evident from this table. The data show that the outstanding superiority of enriched flour over ordinary white flour lies in its sixfold increase in thiamine content, the figure being 75 per cent of that for whole wheat flour. The data show that milling results in a 60 per cent loss of pantothenic acid and a 50 per cent loss of pyridoxine. Much of the phosphorus and certain other minerals are also lost.

The enriched flour now on the market is nearly all produced by adding the nutrients in question to the refined product. A somewhat similar product can be achieved by "longer extraction" in milling, that is, by retaining some of the vitamin and mineral rich portions of the wheat which are milled out in making patent flour. This is the procedure officially adopted in Canada, as described by Newman.[9]

Wheat flour is consumed to a large extent in the form of bread, of which 85 per cent is commercially baked. Most of this bread is made from white flour, but it is estimated that a majority of the bread now consumed is the enriched product. This enriched bread is obtained either by the use of enriched flour or by the direct addition of the specified minerals and vitamins to the dough.

An important factor in the nutritive value of bread is the extent to which nonfat dry milk solids are used in its manufacture. Six per cent of these is frequently mentioned as the desirable amount in modern bread, but apparently much bread is made with 3 per cent or even less when the cost of nonfat dry milk solids is high. Whole wheat bread is commonly made without milk solids. The inclusion of 6 per cent of the solids increases the calcium content of white bread four times and the phosphorus content twice and adds 0.06 mg. of thiamine and 0.36 mg. of riboflavin per pound. It also improves the protein value considerably. Several reports[10] have appeared showing the improvement in the protein value of white bread made with milk solids when 3 to 5 per cent of soybean flour or 1 to 3 per cent of a cultured food yeast replaced a corresponding amount of the wheat flour used in baking.

The proposed minimum standards for enriched bread which are now being followed are, per pound: thiamine 1.1 mg., riboflavin 0.7 mg., nicotinic acid 10 mg. and iron 8 mg. A similar content of nonfat dry milk solids being assumed, the thiamine content is approximately three times as large as that of ordinary bread, the iron content is increased four times and the nicotinic acid content three times. In other nutrients the enriched product falls somewhat short of whole wheat bread.

TABLE 2.—*Vitamin and Mineral Content of Flours*

	Whole Wheat Flour, Mg./Lb.	White Flour, Mg./Lb.	Enriched Flour,* Mg./Lb.
Thiamine	2.53	0.30	2.0
Riboflavin	0.56	0.15	1.2
Nicotinic acid	25.30	3.50	16.0
Iron	17.3	3.0	13.0
Pantothenic acid	6.03	2.50	
Pyridoxine	2.09	0.90	

* Minimum enrichment levels.

Since whole wheat bread contains the bran which is largely absent in white or in enriched bread, the question of relative digestibility is an important one. This question was thoroughly studied by Rubner[11] during World War I. He found that the advantage of the higher protein content of the unmilled product was offset by its lower digestibility and that it contained slightly less total available calories. Noteworthy modern studies have been published by Murlin and his associates.[12] The first study shows that whole wheat bread has in general a lower protein digestibility value but a higher protein biologic value. The second study reveals no significant differences in the digestibility of the carbohydrates of the two breads. The authors point out that any differences in protein or in available energy values are small and of little importance as compared with differences in vitamins and minerals.

Corn.—Corn meal is the chief form in which corn is used as human food, representing a per capita consumption of 23.4 pounds (11 Kg.) in 1939. An additional 8 pounds (4 Kg.) is consumed as breakfast foods, grits, hominy and canned corn.

The corn grain is approximately equal to the wheat grain in thiamine content but contains only one fourth as much nicotinic acid. It is a good source of phosphorus and iron and certain other minerals. But much of the corn meal and flour consumed, as well as the hominy, grits and breakfast foods, is in the form of milled products. The milling process removes the germ and the bran and thus takes out most of the

---

6. McCance, R. A., and Widdowson, E. M.: Mineral Metabolism of Healthy Adults on White and Brown Bread Dietaries, J. Physiol. **101:** 44 (June) 1942. Pringle, W. J. S., and Moran, T.: Phytic Acid and Its Destruction in Baking, J. Soc. Chem. Indust. **61:** 108, 1942. Widdowson, E., and McCance, R. A.: Iron Exchanges of Adults on White and Brown Bread Diets, Lancet **1:** 588 (May 16) 1942.

7. Tables of Food Composition, Miscellaneous Publication 572, United States Department of Agriculture, 1945.

8. Teply, L. J.; Strong, F. M., and Elvehjem, C. A.: Nicotinic Acid, Pantothenic Acid and Pyridoxine in Wheat and Wheat Products, J. Nutrition **24:** 167, 1942.

9. Newman, L. H.: The Retention of B Vitamins in Flour and Bread, J. Am. Soc. Agronomy **34:** 109 (Feb.) 1942.

10. Harris, R. S.; Clark, M., and Lockhart, E. E.: Nutritional Value of Bread Containing Soy Flour and Milk Solids, Arch. Biochem. **4:** 243 (May) 1944. Volz, F.; Forbes, R. M.; Nelson, W. L., and Loosli, J. K.: The Effect of Soy Flour on the Nutritive Value of the Protein of White Bread, J. Nutrition **29:** 269 (April) 1945. Sure, B.: Nutritional Improvement of Cereal Flours and Cereal Grains, J. Am. Dietet. A. **22:** 494 (June) 1946.

11. Rubner, M.: Die Verdaulichkeit von Weizenbrot, Arch. f. Anat. u. Physiol., 1916, p. 61.

12. Murlin, J. R.; Marshall, M. E., and Kochakian, C. D.: Digestibility and Biological Value of Whole Wheat Breads as Compared with White Bread, J. Nutrition **22:** 573 (Dec.) 1941. Sealock, R. R.; Basinski, D. H., and Murlin, J. R.: Apparent Digestibility of Carbohydrates, Fats and "Indigestible Residue" in Whole Wheat and White Breads, ibid. **22:** 589 (Dec.) 1941.

thiamine and minerals present in the entire kernel. The Food and Drug Administration,[13] however, has set standards for enriched corn meal and grits entering interstate commerce which require that each pound contain not less than 2.0 mg. and not more than 3.0 mg. of thiamine, not less than 1.2 mg. and not more than 1.8 mg. of riboflavin, not less than 16 mg. and not more than 24 mg. of nicotinic acid or nicotinamide, and not less than 13 and not more than 26 mg. of iron. North Carolina, South Carolina, Georgia, Alabama and Mississippi have compulsory legislation (1947) which requires that all degermed corn meal and grits sold in the state meet these requirements. These products contain 8 to 9 per cent of protein, which ranks below wheat in biologic value but which combines with milk to provide a protein mixture of high quality. Elvehjem[14] has recently reviewed the role of corn in pellagra-producing diets. The special reason for enriching corn with nicotinic acid is based on the fact that this cereal is used by certain groups in diets which, as a whole, are low in protein and specifically the amino acid tryptophane. Nicotinic acid can serve to decrease the requirement for tryptophane. Inasmuch as corn is low in both tryptophane and nicotinic acid, it is evident that more nicotinic acid is required. Yellow corn meal differs from the white variety, as well as from other cereals, in containing a significant amount of vitamin A: 350 to 500 international units per hundred grams. In view of the rather large consumption of corn meal and other milled corn products by certain groups of the population, the wider use of the unmilled or enriched meal or the development of milling methods which would retain nutrients now lost would be highly desirable.

Canned corn is equal to corn meal in energy and protein on an equivalent moisture basis and is superior to the milled product in mineral and thiamine content.

Oats.—Among the breakfast food cereals, oatmeal and rolled oats, the principal forms in which oats are consumed, rank first both in quantity eaten and in nutritive value. Approximately 529 million pounds (240 million Kg.) are consumed annually. In the milling of oats, only the fibrous hull and the adhering portions are removed, the germ and the other vitamin-rich and mineral-rich portions being left with the product used for human food. Thus oatmeal ranks nutritionally as a whole grain cereal rather than as a milled product.

Oat cereals rank above wheat products both in fuel value and in protein content. Their higher fuel value is due primarily to their fat content (7.4 per cent). Their protein content, over 14 per cent, outranks that of white wheat flour in biologic value. Both oatmeal and rolled oats are low in crude fiber and when properly cooked are highly digestible.

Oatmeal is considerably richer than whole wheat in thiamine. Aughey and Daniel[15] reported that one hundred and twenty minutes' cooking in a double boiler did not cause any appreciable loss of thiamine from rolled oats. The following values for the various vitamins have been reported[7] for uncooked oatmeal: thiamine 2.5 mg. per pound, riboflavin 0.63 mg. per pound and nicotinic acid 5.0 mg. per pound.

Oatmeal is a rich source of iron (23.4 mg. per pound). Its phosphorus content, 66 per cent of which is in the form of phytin, is similar to that of whole wheat.

Rice.—Rice supplies slightly more than 1 per cent of the calories of the average American diet, the annual per capita consumption being approximately 5 pounds (2 Kg.). White, or milled, rice, the form in which most of the consumption occurs, is essentially an energy food. The protein content is around 7.5 per cent, thus being lower than that of corn. Over 50 per cent of the minerals and 85 per cent of the thiamine of the entire kernel are lost in milling. In contrast, brown rice, the product that results when only the hull is removed, contains 0.7 to 0.9 mg. of thiamine per hundred grams. It is nutritionally superior in other respects also. A change from white to lightly milled rice would certainly be in the interests of better nutrition.

Recent developments in the nutritional improvement of white rice have been described by Kik and Williams.[16] Several processes have been proposed for the preparation of milled rice with improved retention of the various vitamins. A comparison of white rice prepared by the conversion process with that of raw rice is given in table 3. It can be seen that a high percentage of the vitamins are retained in the milled product when the conversion process is used.

TABLE 3.—*Thiamine, Riboflavin and Nicotinic Acid Content of Rice*

Type of Rice	Thiamine, Mg./Lb.	Riboflavin, Mg./Lb.	Nicotinic Acid, Mg./Lb.
Rough (brown)	1.48	0.28	26.6
Converted (milled)	1.36	0.20	20.7
Raw (milled)	0.20	0.08	8.3

Rye.—The consumption of rye, mostly as milled rye flour in bread, is less than 3 pounds (1.3 Kg.) per capita annually. This flour is similar to white wheat flour in energy and in protein content. The whole grain contains approximately 2.1 mg. of thiamine per pound, 0.95 mg. of riboflavin and 7.7 mg. of nicotinic acid. Although some of the vitamins are lost when rye flour is degerminated and bleached it is still a better source of most of the B complex factors than white wheat flour.

Barley.—A small amount of barley is consumed as pearl barley and as barley flour for infant feeding. These are milled products which are apparently similar to white wheat flour in energy value but lower in protein content. Milling removes minerals and vitamins to an extent similar to that in the case of wheat.

LEGUMES AND NUTS

Dry legume seeds, such as beans, peas and lentils, are approximately twice as rich in protein as the cereals. While most legume proteins are of rather low biologic value when fed alone, their deficiencies are made up by other proteins in a mixed diet. Dried beans, either home cooked or canned, are noteworthy as a cheap source of protein even though the digestibility is somewhat less than for protein from many other sources.

Dried navy and kidney beans, green or dried lima beans, green or dried peas, lentils and cow peas are all rich sources of thiamine, containing around 0.5 mg. per hundred grams of the dried seed. A part of this thiamine is lost, however, in the cooking process. Two thirds of a cup of baked, canned beans should nevertheless supply one eighth of the day's thiamine requirement. These legumes also supply significant amounts of riboflavin. Fresh green lima beans and peas are rich in ascorbic acid, but a large loss is involved in cooking. The legume seeds are noteworthy also for their iron content, the dried products containing from 6 to 10 mg. per hundred grams. Two thirds of a cup of baked beans will supply one half the daily adult allowance. Legume seeds are notably higher in calcium and in phosphorus than are even the whole cereal seeds.

---

[13] Enriched Corn Meal and Grits, Food and Drug Administration, Federal Register, May 7, 1947, p. 3112

[14] Elvehjem, C. A.: Corn and Pellagra, in Conference on Corn Enrichment, Clemson, S. C., Clemson Agricultural College, July 1947.

[15] Aughey, E., and Daniel, E. P.: Effect of Cooking on the Thiamine Content of Foods, J. Nutrition **19:** 285 (March) 1940.

[16] Kik, M. C., and Williams, R. R.: The Nutritional Improvement of White Rice, Bulletin 112, National Research Council, June 1945.

It is evident that a larger consumption of dried legumes, particularly in place of refined cereals, would improve the diet in several respects. Their cheapness commends them especially for use in low cost diets.

Green and yellow string and wax beans, classed as seed pods, are comparable to the legume seeds in protein, minerals and thiamine per unit of dry matter and in addition contain notable amounts of vitamin A, riboflavin and ascorbic acid.

Peanuts have nutritive values similar to those of the other legumes. They have a much higher energy value due to the high fat content (44 per cent), and the protein is of high biologic value. Peanut butter has a nutritive value similar to that of peanuts. Soybeans are nutritionally similar to peanuts. They are little used as human food in this country. Walnuts are comparable to peanuts in thiamine content, but almonds have somewhat less. All have a high fat and a high protein content and are comparable as sources of calcium and phosphorus.

VEGETABLES

Under the heading "vegetables" are grouped a great variety of foods which differ widely in their nutritive values.

Potatoes.—According to statistics of the United States Department of Agriculture, approximately 275,000,000 bushels of white or Irish potatoes are consumed in the United States per year, or approximately 125 pounds (57 Kg.) per capita. Thus, potatoes provide approximately 4 per cent of the total calory needs on the average. For many persons, however, particularly the lower income groups, potatoes make up a much larger part of the diet than this average figure indicates, and their nutritive value is of added concern accordingly.

Potatoes are primarily an energy food, consisting largely of starch. Approximately 10 per cent of the total calories are in the form of protein of good biologic value. The potato is low in fiber, and according to various investigators it is highly digestible (92 to 99 per cent). It is a significant source of iron, in that one medium-sized potato may provide as much as one tenth of the daily requirement.

As harvested, potatoes contain 12 to 35 mg. of ascorbic acid per hundred grams and thus provide a substantial amount of this vitamin. There is a continuous loss in storage, however, which amounts to 50 to 70 per cent in twelve months. The initial loss is rapid. There is a further loss in cooking, ranging from 14 to 66 per cent according to the procedure, as reported by Esselen and co-workers.[17]

The thiamine content of the potato ranges from 95 to 165 micrograms per hundred grams, which would mean from 8 to 14 per cent of the adult daily requirement in a 150 Gm. serving (approximately the average daily consumption) if it were not for cooking losses. The potato does not supply a significant amount of riboflavin. Iron is richest in the outer portions of the potato; vitamin C seems to be evenly distributed throughout. There is evidence that the vitamin and mineral loss is less in potatoes boiled with the skins on than when baked, but the loss is greatest for peeled potatoes.

The consumption of sweet potatoes in pounds is only about 25 per cent that of the white variety previously discussed. However, per unit weight it contributes appreciably more calories, owing to the higher dry matter content of the sweet variety. Like the white, the sweet potato is primarily an energy food, low in fiber and highly digestible. Only 6 per cent of the total calories are in the form of protein, as compared with 10 per cent for the white variety.

Sweet potatoes are especially noteworthy, however, for their vitamin A value (7,700 international units per hundred grams[7]). Thus, an average-sized serving would supply more than the adult daily allowance of 5,000 international units.[18] Sweet potatoes are apparently similar to white in vitamin C content but lower in thiamine. They are also lower in iron and make no significant contribution to the diet as regards other minerals, except possibly in certain trace elements. An excellent study of the nutritive value of dehydrated sweet potatoes has been published by Lease and Mitchell.[19]

Other Root Crops.—Among other root crops the carrot is high in carotene content. Converting the carotene into international units of vitamin A the values range from 2,200 to 10,000 units per hundred grams, so that approximately three fourths of a cup of cooked carrots should furnish one half to more than two times the daily adult allowance. However, there is some question as to how carotene from various sources is utilized by the body. Utilization values as low as 1 to 19 per cent for man have been reported in the literature.

Compared with the carrot on a calory basis, turnips furnish similar amounts of thiamine, riboflavin, iron and protein, 50 per cent more calcium and eight times as much vitamin C. Swede juice has been reported one half as rich as orange juice. One half a cup of properly cooked turnips should supply approximately one fifth the adult daily allowance of ascorbic acid. Beets are similar to carrots as regards riboflavin and vitamin C content and contain more iron and protein. Raw onions are also a good source of vitamin C,[7] but storage losses range from 14 to 50 per cent, and thus old onions are not a reliable source.

Tomatoes.—Tomatoes are important both because of their special nutritive values and because of their widespread production. They rank third in quantity among the vegetable crops, being exceeded only by white and sweet potatoes. Among the canned vegetables, the tomato in its various forms ranks first.

Tomatoes are outstanding as a source of ascorbic acid, having an average content of 25 mg. per hundred grams for the summer grown products. Thus one small tomato will supply about one third the recommended daily allowance for the adult (75 mg.). The acidity of the tomato protects it against any considerable loss in cooking. In the canning of tomatoes and tomato juice there is little loss of the vitamin if the process is properly carried out. However, tomato juice purchased on the retail market has been shown to vary considerably in ascorbic acid content. Values ranging from 2.5 mg. to 25.2 mg. per hundred grams have been reported. One 5 ounce (150 cc.) glass of tomato juice supplies about one third the daily allowance. Recent evidence indicates that tomatoes as purchased on the northern markets in winter contain much less ascorbic acid than those available in summer.

---

[17] Esselen, W. B.; Lyons, M. E., and Fellers, C. A.: The Composition and Nutritive Value of Potatoes, with Special Emphasis on Vitamin C, Bulletin 390, Massachusetts Agricultural Experimental Station, March 1942.

[18] In setting up this allowance, it was recognized that *somewhat more* would be required if all the units were furnished as carotene *and somewhat less* if all were furnished by vitamin A itself, *because* a unit in the *form of carotene* may be, under certain conditions at least, only about half as effective in human nutrition as a unit of vitamin A itself. *Thus,* the rating here given for sweet potatoes, while accurate for *comparison* with other plant sources of vitamin A, overrates the vegetable in *comparison* with a source of vitamin A *itself.* *The same* considerations apply to later *discussions of the* vitamin A value of the foods included in this paper.

[19] Lease, E. J., and Mitchell, J. H.: Biochemical and Nutritional Studies of Dehydrated Sweet Potato, Bulletin 329, *South Carolina Agricultural* Experiment Station, *June 1940.*

Tomatoes are also rich in carotene. Ripe tomatoes, fresh or canned, contain approximately 1,000 international units of vitamin A per hundred grams. This means that one small tomato or a 5 ounce glass of canned juice will supply about one fifth the daily adult allowance.

On the basis of the available figures, tomatoes in the amounts consumed cannot be considered as an important source of any of the B group of vitamins or of the mineral elements with the possible exception of iron.

Leafy Vegetables.—The leafy vegetables, including cabbage, kale, chard, broccoli, spinach, turnip greens, collards, lettuce and beet greens, are outstanding sources of certain minerals and vitamins. They are particularly noteworthy for their calcium, the important element in which cereals, potatoes and most other foods except milk and cheese are deficient. Among the leafy vegetables mentioned, turnip greens rank at the top in calcium content. One half cup (3 ounces, or 90 cc.) of the cooked greens will supply approximately one third the daily adult allowance. Broccoli, collards, kale, loose leaf lettuce and mustard greens are also rich sources. Head lettuce and cabbage are relatively low, but cabbage greens and the outer leaves of cabbage rank even higher than turnip greens.

Experiments by Fincke[20] have shown that the calcium content of broccoli and that of cauliflower are nearly as available as that of milk. Speirs[21] has reported that the utilization of calcium from turnip greens is about equal to that from milk but that the calcium in tender greens, collards and kale is less well utilized. The calcium of spinach, beet greens, chard and lamb's-quarters is not nutritionally available because of the high oxalic content of these vegetables.

The calcium contribution of green leafy vegetables becomes particularly important in diets containing little milk or cheese.

The green leafy vegetables are important sources of iron. A serving (3 ounces) of cooked turnip greens, mustard greens, spinach, chard or beet greens will supply approximately 25 per cent of the adult daily allowance. Kale supplies somewhat less and headed lettuce and cabbage are relatively poor sources.

The green leafy vegetables are all rich sources of carotene and thus make an important contribution to the vitamin A content of the diet. A range of 2,800 to 13,650 international units per hundred grams for kale, chard, spinach, turnip greens, dandelion greens and mustard greens has been reported.[7] The greener and leafier the product, the higher is the vitamin A content. Carotene from green leafy vegetables seems to be better utilized than that from the yellow vegetables. Allowing for losses in cooking and for the fact that the vitamin allowance must be higher when carotene is the source, a 3 ounce serving of one of these greens can be relied on approximately to meet the day's needs. Headed cabbage and lettuce are relatively poor sources.

In the fresh state, the leafy vegetables are excellent sources of vitamin C. A cup of raw shredded cabbage will furnish nearly a third of the day's allowance. Watercress, collards, broccoli, turnip greens, mustard greens and kale are similar in vitamin C content to cabbage; beet greens and dandelion greens contain somewhat less; lettuce, escarole and endive contain much less. Leafy vegetables lose vitamin C by oxidation in storage and also in cooking. Further losses occur by solution in cooking if the cooking water is discarded. Gould, Tressler and King[22] found that, in cooking, 25 per cent of the vitamin C of cabbage was destroyed by oxidation and another 25 per cent lost in the cooking water. Other vegetables have shown similar losses. In the preparation of vegetables, further destruction of vitamin C by oxidation occurs when they are crushed or bruised or allowed to stand for long periods of time at room temperature both before and after cooking. Cutting and chopping into small pieces also accelerates the oxidation of vitamin C but in order to reduce the cooking time it is sometimes advisable to do this with large vegetables, particularly if they are cooked in very small amounts of water. Vitamin C losses can be decreased by refrigerating the vegetables until ready to prepare and serve. In cooking use as little water as possible, have the water boiling to start with, bring the water back to the boil quickly after adding the vegetables and keep the cooking time at a minimum. The same methods which help to conserve the vitamin C value will also conserve riboflavin, thiamine and mineral values. All these food components are more or less soluble in water.

Most of the green leafy vegetables are excellent sources of riboflavin, the leaves being much richer than the stems. A serving of cooked beet greens will supply about one fourth of the daily adult allowance. Spinach and kale supply about one fifth. Other greens supply a lesser amount, headed cabbage and lettuce ranking at the bottom of the list. Leafy vegetables are not a good source of thiamine, furnishing only 3 to 15 per cent of the adult daily allowance. The destruction in cooking usually does not exceed 10 to 15 per cent, and when large amounts of water are used and discarded, large additional losses occur by solution. Certain leafy vegetables have been found effective in preventing and curing pellagra. The following values have been reported for some of the green vegetables (mg. per hundred grams): spinach 0.70, broccoli 0.90, cress 1.0 to 2.0 and kale 2.0.

In the amounts commonly consumed, leafy vegetables are of little significance as energy foods, but their higher carbohydrate content provides roughage, which is needed in certain diets. They are relatively richer in protein than in calories, and their protein ranks above seed proteins in general in biologic value. However, the actual contribution to the diet in the amounts commonly consumed is small.

Miscellaneous Vegetables.—There are several other vegetables which, although limited as to general use, make important contributions to the diet of certain groups. The Hubbard, or winter, variety of yellow squash contains 5,000 international units of vitamin A per hundred grams. One half cup of the cooked product supplies nearly one half the adult daily allowance. Summer squash contains much less. Pumpkin furnishes approximately one fourth as much as winter squash.

---

[20] Fincke, M. L.: The Utilization of the Calcium of Cauliflower and Broccoli, J. Nutrition **22**: 477 (Nov.) 1941.

[21] Speirs, M.: The Utilization of Calcium in Various Greens, J. Nutrition **17**: 557 (June) 1939.

[22] Gould, S.; Tressler, D. K., and King, C. G.: Vitamin C Content of Vegetables: V. Cabbage, Food Research **1**: 427 (Sept.-Oct.) 1936.

A serving of fresh asparagus (nonbleached) can furnish approximately one seventh the day's allowance of vitamin A and one sixth that of vitamin C. It is also a significant source of calcium and iron. Brussel sprouts are rich sources of vitamin C and also furnish significant amounts of iron, calcium and vitamin A. Cauliflower is notable for its content of ascorbic acid, thiamine and riboflavin.

One medium-sized sweet pepper will furnish 630 international units of vitamin A and 180 to 200 mg. of vitamin C. Chili peppers, whether fresh or dried, are a good source of vitamin A. Fresh chili is an excellent source of vitamin C. Some of the vitamin C is retained on canning. Okra contains 740 international units of vitamin A per hundred grams. Parsley, which is used mainly for decoration, is an excellent source of both vitamin A and iron. When fresh it furnishes some vitamin C.

FRUITS

According to United States Department of Agriculture statistics, the approximate per capita consumption of fruits, calculated on the fresh basis, is about 150 pounds (68 Kg.). Of this total, 75 per cent is consumed fresh and 15 per cent canned, and the remainder is divided between dried fruits and juices. Apples outranked all other fruits, representing over one fourth the total consumption. But citrus fruits as a class exceed apples by 50 per cent or more. The nutritive values of various fruits have been excellently summarized in an article by Morgan,[23] and we have drawn on this article for many of the data which follow.

Fruits do not contribute important amounts of either calories or proteins to the diet, but they are of outstanding value because of their content of certain vitamins and minerals. As a class, fruits are important sources of ascorbic acid, certain members of the B complex, vitamin A, iron and other minerals, but there is a large variation among the different kinds as regards the extent of their contributions.

The citrus fruits are especially important for their ascorbic acid content. A medium-sized orange weighing about 5½ ounces (155 Gm.) will meet the daily adult allowance. A somewhat greater weight of grapefruit is required. Four and one-half ounces (130 Gm.) of canned orange or lemon juice or 6 ounces (170 Gm.) of canned grapefruit juice would supply the daily allowance. While the citrus fruits cannot be considered important sources of other nutrients, they do contain iron, calcium and thiamine in amounts which are of some significance in the diet. Pineapples, which are consumed mostly canned or as juice, contain about half as much vitamin C as do citrus fruits and are in general similar in other values.

Apricots and yellow peaches are important sources of vitamin A. The day's adult allowance is supplied by 3½ ounces (100 Gm.) of fresh or canned apricots or by approximately three times as much fresh or canned peaches. Weight for weight, dried peaches and dried apricots supply approximately three times as much vitamin A as the fresh products. Cantaloupes contain about half as much of this vitamin as do fresh peaches, and they are an important source of ascorbic acid, being about equal to the citrus fruits. Dried prunes furnish significant amounts of vitamin A, riboflavin and thiamine. Plums rank above other fresh fruits in thiamine content. Apricots, peaches and to a lesser extent prunes are significant sources of iron.

Apples cannot be considered a large source of any vitamin or mineral nutrient. In view of their large consumption, however, they do make a significant contribution of ascorbic acid to the diet. A medium-sized apple weighing 6 ounces supplies on the average about one tenth the day's allowance, but there are decided differences among varieties. The keeping qualities of apples make it possible for them to be marketed throughout the winter in latitudes where fresh grown sources of vitamins are unavailable or high in price. In rural areas in which they are produced, home-stored apples undoubtedly make an important contribution of ascorbic acid to the diet during the winter season, when the problem of getting adequate supplies of this vitamin is most difficult. Apples also contain a significant amount of iron. There is a 25 per cent loss of vitamin C in making applesauce. The loss is greater when apples are baked or made into pie.

Bananas are similar to apples in vitamin C value: they contain almost twice the iron. Bananas are a significant source of vitamin A.

Fresh strawberries are another food high in vitamin C, the range for eleven varieties being between 40 to 104 mg. per hundred grams. Thus one-half cup would supply from two thirds to more than the daily need for ascorbic acid.[24]

SUGARS, SYRUPS AND MOLASSES

White sugar contributes only calories to the diet. It is clear that the present large consumption of sugar is disadvantageous in that it means a smaller consumption of nutritionally superior foods. Brown sugar, corn syrup, honey, maple syrup and maple sugar contain small amounts of calcium and iron. Honey contains small amounts of some of the B vitamins and vitamin C. Molasses is an excellent source of both, 1½ tablespoons furnishing approximately one tenth the estimated daily adult allowance of calcium and one fifth the estimated daily adult need of iron. Sorghum supplies a lesser amount of calcium and about an equal amount of iron. Table blend syrups contain a significant but lesser amount of iron.

VEGETABLE OILS

Cottonseed, corn, soybean, peanut and olive oils and in lesser amounts other vegetable oils are consumed as shortenings, salad oils and margarines. The oils as such are sources only of energy and essential fatty acids. Many oleomargarines are now fortified with 15,000 international units of vitamin A per pound; they may also supply some vitamin D.

Tuberculosis Control.—Minimal, noninfectious cases of tuberculosis are private physicians' cases, not sanatorium cases. Indeed, the private practitioner can be a major force in the future control of tuberculosis in the communities of our country if he undertakes to participate in follow-up activities after surveys have been completed. Through his efforts, minimal tuberculosis can be checked and, in individual cases, never become serious. Under the physician's care, needless distress and tragedy can be avoided. As a consequence of his vigilance, the general practitioner can reduce the occurrence of deaths from tuberculosis.—Weber, F. J.: *Ohio Public Health,* February 1948.

---

[23] 23. Morgan, A. F.: A Nutritive Index of Fruits, Fruit Products J. 21: 75 (Nov.) 1941.

[24] 24. Burkhart, L., and Lineberry, R. A.: Determination of Vitamin C and Its Sampling Variation in Strawberries, Food Research 7: 332 (July-Aug.) 1942.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary*

CHLOROQUINE DIPHOSPHATE.—Aralen Diphosphate-Winthrop. — 7-chloro-4-(4-diethylamino-1-methylbutylamino) quinoline diphosphate.—$C_{18}H_{32}ClN_3O_8P_2$.—M. W. 515.88,

Actions and Uses.—Chloroquine diphosphate is highly active against the erythrocytic forms of Plasmodium vivax and Plasmodium falciparum. It does not prevent relapses in vivax malaria, nor will it prevent the establishment of vivax infection when administered as a prophylactic. It is, however, effective in vivax malaria as a suppressive agent and for the termination of acute attacks, significantly lengthening the interval between treatment and relapse.

In falciparum malaria, chloroquine diphosphate abolishes the acute attack and effects complete cure of the infection.

Chloroquine diphosphate has approximately three times the activity of quinacrine hydrochloride against standardized strains of P. vivax and P. falciparum.

Chloroquine diphosphate is rapidly and completely absorbed by the gastrointestinal tract. Some of it is excreted slowly in the urine. Considerable amounts are deposited in the organs and tissues, and it is concentrated in nucleated cells, particularly those of the liver, spleen, kidneys and lungs.

Dosage.—Chloroquine diphosphate is usually administered orally either before or after meals. For suppression of vivax malaria a weekly dose of 0.5 Gm. given at exactly seven day intervals is recommended.

Chloroquine diphosphate is metabolized in the body, but this occurs slowly and the drug may be detected in body tissues for more than a week after discontinuing medication. The drug is well tolerated in therapeutic doses and does not produce cinchonism or discolor the skin. However, there may be mild headache, pruritus, visual disturbances and gastrointestinal complaints following therapeutic doses. Blurring of vision and difficulty in focusing are occasionally observed following prolonged administration. None of the side reactions appears serious, and all have been of a reversible nature.

For treatment of acute attacks of malaria due to P. vivax and P. falciparum, an initial dose of 1 Gm. followed by an additional 0.5 Gm. after six to eight hours and a single dose of 0.5 Gm. on each of two consecutive days (total of 2.5 Gm. in three days) is sufficient to eradicate most infections with P. falciparum and to terminate an acute attack of vivax malaria. In the latter, freedom from clinical attacks may be maintained thereafter by administration of suppressive doses (0.5 Gm. weekly).

Tests and Standards.—

Chloroquine diphosphate occurs as a white, crystalline powder possessing a bitter taste. It melts in the range 193 to 195 C. Two modifications of chloroquine diphosphate are obtainable. The second form melts at 215 to 218 C. It is freely soluble in water and practically insoluble in alcohol, benzene, chloroform and ether. The *pH* of a 1 per cent solution is about 4.5.

Dissolve about 50 mg. of chloroquine diphosphate in 3 cc. of water. Add a few drops of ammonium molybdate-test solution: a white precipitate develops immediately.

Dissolve 20 mg. of chloroquine diphosphate in 20 cc. of water. Add 5 cc. of a saturated aqueous solution of picric acid: a yellow precipitate forms immediately Filter off the precipitate, wash with water and air-dry on the filter funnel: the product melts from 205 to 210 C. *(Caution!)*

Dissolve 0.25 Gm. of chloroquine diphosphate in 50 cc. of water. Add 1 cc. of strong ammonia solution and extract with two 30 cc. portions of cyclohexane. Evaporate the cyclohexane solution to dryness on the steam bath. Place the residual oil in a vacuum desiccator over phosphorus pentoxide and allow to stand over night to permit crystallization: the solid material melts at a temperature of 87 to 90 C.

Dry about 0.25 Gm. of chloroquine diphosphate, accurately weighed, in vacuum over phosphorus pentoxide at room temperature for forty-eight hours: the loss in weight does not exceed 2 per cent.

Dissolve about 0.2 Gm. of chloroquine diphosphate, accurately weighed, in 50 cc. of water. Dissolve 1.5 Gm. of bismuth oxynitrate in 10 cc. of nitric acid and dilute to 100 cc. with water. Add 50 cc. of the bismuth solution to the solution of chloroquine diphosphate. Digest for two hours on the steam bath, filter into a tared Gooch crucible and wash with dilute nitric acid (2 cc. to 100 cc.). Wash successively with water, alcohol and ether. Dry in an oven at 100 C. for two hours: the phosphorus content is not less than 11.8 per cent or more than 12.25 per cent.

Weigh, accurately, about 0.2 Gm. of chloroquine diphosphate. Dissolve in 50 cc. of water, transfer to a separatory funnel. Add 5 cc. of ammonium hydroxide and extract with 25, 20, 15, 10 and 10 cc. portions of ether. Drain the combined ether extracts through a cotton pledget into a 100 cc. tared beaker. Evaporate the solution on the steam bath to dryness and finally heat at 100 C. for thirty minutes: the residue, calculated to chloroquine diphosphate, is not less than 98 per cent or more than 102 per cent.

CHLOROQUINE DIPHOSPHATE TABLETS

Grind ten tablets in a mortar. Weigh, accurately, about 0.3 Gm. of the pulverized tablets. Dissolve in about 50 cc. of water, filter and wash the residue with about 20 cc. of water. Transfer to a separatory funnel, add 5 cc. of ammonium hydroxide and extract with 25, 20, 15, 10 and 10 cc. portions of ether. Drain the combined ether extracts through a cotton pledget into a 100 cc. tared beaker. Evaporate the solution on the steam bath to dryness and finally heat at 100 C. for thirty minutes: the residue, calculated to chloroquine diphosphate, is not less than 95 per cent or more than 105 per cent.

WINTHROP-STEARNS, INC., NEW YORK

Tablets Aralen Diphosphate: 0.25 Gm.

U. S. patent 2,233,970 (March 4, 1941; expires 1958).
U. S. trademark registration pending.

ASCORBIC ACID See New and Nonofficial Remedies, 1947, p. 517).

The following additional dosage form has been accepted:

THE NATIONAL DRUG COMPANY, PHILADELPHIA

Tablets Ascorbic Acid: 100 mg.

ESTRONE (See New and Nonofficial Remedies, 1947, p. 341).

The following additional dosage forms have been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Estrone in Oil: 10 cc. vials containing 1 mg. (10,000 international units) in peanut oil. Preserved with 0.5 per cent chlorobutanol.

Aqueous Suspension Estrone: 1 mg. in 1 cc. ampuls (10,000 international units) and 5 mg. in 1 cc. ampuls (50,000 international units). Each cubic centimeter contains estrone crystals in aqueous suspension with isotonic sodium chloride solution, stabilized with acacia.

PERTUSSIS IMMUNE SERUM (Human) (See New and Nonofficial Remedies, 1947, p. 440).

The following dosage form has been accepted:

HYLAND LABORATORIES, LOS ANGELES

Pertussis Immune Serum (Human): Vials containing vacuum-dried powder representing 20 cc. of pertussis immune serum (human) preserved with merthiolate 1:35,000. Each vial is packaged with a 10 cc. vial of sterile distilled water.

NICOTINAMIDE (See New and Nonofficial Remedies, 1947, p. 514).

The following additional dosage form has been accepted:

AMERICAN PHARMACEUTICAL CO., INC., NEW YORK

Tablets Nicotinamide 100 mg.

ESTROGENIC SUBSTANCES (See New and Nonofficial Remedies, 1947, p. 343).

The following dosage forms have been accepted:

GEORGE A. BREON & CO., INC., KANSAS CITY, MO.

Solution Estrogenic Substances in Oil with Chlorobutanol 3 per Cent: 30 cc. vials containing the equivalent of 10,000 international units per cubic centimeter in sesame oil. Preserved with 3 per cent chlorobutanol.

FORBES LABORATORIES, NEW YORK

Solution Estrogenic Substances in Oil: 1 cc. ampuls and 10 cc. and 30 cc. vials containing 10,000 international units and 1 cc. ampuls and 10 cc. and 20 cc. vials containing 20,000 international units in sesame oil. Preserved with 0.5 per cent chlorobutanol.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Twelve dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, APRIL 17, 1948

HOSPITAL NUMBER POSTPONED

Under normal conditions this issue of THE JOURNAL would be the annual Hospital Number. However, the absence from their work of the compositors employed by the American Medical Association continues, and it is necessary to postpone the Hospital Number until arrangements can be made to set up the large tables of statistics that special number contains. It is hoped this can be done by late May or early June.

BAGASSE DISEASE OF THE LUNGS

Sugar cane from which the juice has been extracted is called bagasse. The product is stored in the open for months or years when it is broken, processed and pressed into various shapes for insulating building materials. The dust of the dried grass is an industrial hazard. The disease that follows its inhalation is known under the dubious name of bagasse or even more improperly, perhaps, as bagassosis[1] or bagasscosis.[2] Sodeman and Pullen[3] state that "Since the suffix 'osis' is properly added only to words formed from Greek roots and since we have as yet not been able to trace the term 'bagasse' to the Greek, we prefer the simple term 'bagasse disease of the lungs."

Bagasse disease of the lungs is characterized by cough, dyspnea and hemoptysis, night sweats, chills and intermittent fever. Roentgenologic examination of the chest shows mottling of both lungs, like that of miliary tuberculosis. The disease commences insidiously. The pulmonary reactions incited by the inhalation of bagasse dust are reversible and complete resolution may occur. Because the disease is seldom fatal, only rare opportunities have thus far been presented to determine the histologic changes in the lungs.

Investigations of this sort have been limited to a single necropsy and to the removal of a few particles of tissue for biopsy, The lesions so far described consist of localized pneumonic areas composed of foam cells together with foreign body reactions around bagasse fibers.

The cause of bagasse disease is still obscure. Some investigators believe it is either a fungus or a bacterial infection, the causative agents being introduced on the surface of the inhaled dust. Others contend that it is a virus disease and still others that it is an allergic response to the presence of bagasse material.

Gerstl, Tager and Marinaro[4] have approached the subject experimentally and the results are suggestive. Suspensions of five lots of bagasse were administered intravenously, insufflated into the trachea or injected into the skin of rabbits and guinea pigs. Animals receiving intravenous injections of bagasse in suspension rapidly became ill or died. When, however, the dust was autoclaved similar amounts of the suspension could be given without apparent ill effects. The lungs and other viscera of the animals receiving fresh bagasse suspension showed extensive foci of necrosis and cellular reactions. In addition, the presence of mycelia and spores in the damaged organs served as an indication of the nature of the infective agent. Animals that received injections of autoclaved bagasse revealed only small granulomas in the lungs of the foreign body type. These results suggest that bagasse disease of the lungs is caused by a fungus and that the dust itself is relatively innocuous.

THE DEVELOPMENT AND PROGRESS OF NEUROSURGERY

In his centennial address before the Section on Nervous and Mental Diseases of the Annual Session of the American Medical Association at Atlantic City, N.J., June 12, 1947, Stanley Cobb reviewed progress in the previous hundred years in neurology, psychiatry and neurosurgery.[1] In 1847 specialisation in medicine was just beginning. While psychiatry was already developing, neurology was in the earliest stages and neurosurgery did not exist. After instructive sketches of the advances in the knowledge of the nervous system, its structure, physiology and diseases, Cobb considered neurosurgery, which did not begin until about 1900. The technics of neurosurgery—asepsis, anesthesia and hemostasis--were not sufficiently developed earlier, which was the case also with the clinical localization of lesions within the brain and the cord.

---

[1] Castleden, L.I.M., and Hamilton-Paterson, J.L.: Bagassosis: An Industrial Lung Disease, Brit. M.J. 2: 478, 1942.

[2] Jamison, C., and Hopkins, J.: Bagasscosis: A Fungus Disease of the Lung, New Orleans M. & S.J. 93:580, 1941.

[3] Sodeman, W.A., and Pullen, R.L.: Bagasse Disease of the Lungs, Arch. Int. Med, 73:365, 1944.

[4] Gerstle, B., Tager, M., and Marinaro, N. A., Pathogenicity of Bagasse, Arch. Path. 44: 343, 1947.

[1] Cobb, S.: One Hundred Years of Progress in Neurology, Psychiatry and Neurosurgery, Arch. Neurol. & Psychiat. 59: 63-98 (Jan.) 1948.

According to Cobb, Godlee in 1884 removed the first brain tumor " localized scientifically." Trepanning was done by the neolithic man; Hippocrates used the trephine with occasional success, and by 1890 more and more successful operations were performed on the brain. Sir Victor Horsley (1857-1916) is listed as the first neurosurgical specialist. He devoted his life to neurosurgery, for which he prepared himself by operations on dogs and monkeys. He was a great source of inspiration and added much to the understanding of cerebral physiology. According to present standards his technic seems rather rough and the care that his patients received seems somewhat primitive.

After due mention of other pioneers in neurosurgery, Cobb called special attention to Harvey Cushing (1869-1939), who, besides guiding neurosurgery into a specialty of the first order, advanced greatly the knowledge of brain tumors, their clinical manifestations, their structure and origin, their effects on nervous functions and their surgical treatment. Cushing removed his 2,000th brain tumor in May 1931 and operated for the last time in November 1932.

Neurosurgery has expanded greatly since pioneer days. A notable number of physicians have devoted themselves to the long and difficult training in the technics and the background of neurosurgery. The 1939 meeting of the Harvey Cushing Society was attended by thirty-seven members. According to Cobb two hundred and thirty-one surgeons have been approved by the board of neurosurgery. Frontal leukotomy has increased the understanding of the functions of the frontal areas of the brain, and there seems to be good reason to expect new advances in neurology and psychiatry as neurosurgery extends.

Cobb closed his valuable review with the following paragraph:

> One hundred years from now, when some neurologist of the twenty-first century gives this historical review for the bicentenary of the American Medical Association, he will tell of many advances with the new technics of physics and chemistry. Words we are just learning to use will be commonplace, and new terms and concepts that we could not understand will be used. Our present theories will seem primitive. Nevertheless, the golden years of anatomy in the late nineteenth century will not be forgotten. The resurgence of neurophysiology in the beginning of the twentieth century will remain a great epoch. The development of neurosurgery will stand as an example of hard-earned medical progress by brilliant and courageous men.' And, unless we pay more heed to social psychology and to the facts that psychiatry is gleaning from the study of interpersonal relations, there will be no meeting of the American Medical Association in 2047!

Current Comment

HEMOCONCENTRATION AND GASTRIC ULCER

Hemoconcentration following extensive superficial burns was believed by Kapsinow[1] to be the etiologic factor in the production of gastric and duodenal lesions (Curling's ulcer). Friesen and Wangensteen[2] of the Department of Surgery, University of Minnesota Medical School, studied the question by experiments on dogs under deep intravenous sodium pentobarbital anesthesia (15 mg. per pound). In 12 of 14 dogs subjected to burns accompanied by the administration of histamine hemoconcentration developed, the hematocrit reading rising from an average of 44 per cent to an average of 55.7 per cent. Readings as high as 65 to 72 per cent were recorded in certain dogs. All 12 dogs showed congestion of the mucous membrane of the stomach and duodenum. Nine of them showed definite Curling's ulcer, 5 bleeding and 3 perforating. The 2 dogs in which increased concentration of the blood failed to develop did not demonstrate gastric or duodenal abnormality. In a second group of dogs subjected to burns accompanied by the administration of histamine in beeswax, attempts were made to prevent hemoconcentration by controlled intravenous instillations of plasma. In all cases in which blood concentration was maintained at a normal level, gastric or duodenal abnormality did not appear. Similar though less pronounced results were obtained in dogs in which increase in gastric secretion was not produced by histamine injection. From these results increased concentration of the blood following extensive superficial burns is the dominant etiologic factor in the production of Curling's ulcer. Gastrointestinal abnormalities following such burns can be prevented by adequate antihemoconcentration therapy.

---

[1] Kapsinow, R.: South. M. J. 27:599, 1934.

[2] Friesen, S. R., and Wangensteen, O. H.: Proc. Soc. Exper. Biol. & Med. 64:81, 1947.

Official Notes

AMEND BROADCAST PROGRAM

Due to cancellation of time by the National Broadcasting Company for April 24, the program of the American Medical Association Network series, "Doctors Today," scheduled for that date will be broadcast May 1. Subsequent programs will be broadcast a week later than originally scheduled in the March 27 issue of THE JOURNAL. The amended program is as follows:

May 1, 1948	Child Guidance
May 8, 1948	Health for Every Citizen
May 15, 1948	Human Brucellosis

Washington Letter

(From a Special Correspondent)

April 15, 1948.

Scheele Testifies Before Committee

One of the first official acts of Dr. Leonard A. Scheele, following his induction as Surgeon General of the Public Health Service, was to testify before a congressional committee. He told the House Committee on Interstate Commerce that 54,000,000 Americans live in communities which lack full time local health services. In accepting his appointment Dr. Scheele said: "The health of the American people and their health resources cannot and must not become a monopoly, either of governments, private enterprise or charitable organizations. Each of these great institutions has made incalculable conibutions to American Health. The constituent groups and organizations within them must endure and grow in wisdom, strength and efficiency."

Outline Plan to Replace Physicians

Dr. Paul Magnuson, medical director of the Veterans Administration, reported that a plan has been worked out to replace the thirteen hundred physicians on loan from the Army and Navy who are expected to leave the agency this summer. Outgoing military physicians will be replaced by three year resident physicians. To assist the agency and simultaneously broaden opportunities for residents, prospective specialists will serve their final two years in veterans' hospitals, practicing under the supervision of certifified consultants. The agency now has a residency program covering the first three years of the specialty apprenticeship. The advanced program will provide salaries from $4,100 to $7,000 annually.

Approves Allowances For Disabled Veteran's Dependents

The House Veterans Committee unanimously approved a bill to give $61,800,000 in special allowances to dependents of 130,700 veterans with disabilities of 60 per cent or more. The bill, if finally approved, would for the first time establish benefits for dependents of disabled men. It would give these allowances to dependents of totally disabled veterans of World Wars I and II: wife, $30 a month; first child, $20; next two children, $15 each; dependent mother or father, $25 each. The allowances would be reduced for lesser disabilities.

Rider To Appropriations Bill Rejected By Committee

Representative Frank Keefe, Republican, Wisconsin, sponsored a civil rights rider to the appropriations bill which would have barred federal public health, hospital and vocational educational grants from states practicing racial discrimination. The defeated Keefe amendment read: "No part of the appropriations provided for in this act shall be paid as grants to any state or educational institution in which, because of race, color or creed, discriminatory practices deny equality of educational opportunity or employment to pursue such educational courses or employment as are provided for by such grant." The rider would have denied federal subsidies from state universities or hospitals that do not admit Negroes. Suspension of the rider is said to have removed another potential source of controversy in the present civil rights issue over which Southern Democrats threaten to withdraw from the party and have taken steps to remove President Truman's name from state ballots.

Experts Say Physicians Are Unprepared For Atomic Attack

In a recent address here, Rear Admiral Clarence J. Brown, assistant chief of the Bureau of Research and Medical Military Specialties, declared that the nation's physicians are unprepared for the emergency of an atomic bomb attack in the event of another war. He advocated that all medical practitioners take training in military aspects of medicine. The general public, he said, "may possibly derive some comfort from the hope that threat of retaliation might minimize an enemy attack." "Not so of the medical profession," he said; "its work begins before any retaliation. Long before the retaliation bombs are received by the enemy, we shall be confronted in our great cities by the world's greatest catastrophe, such utter devastation, such unexampled human misery as transcends the imagination. During the immediate hours and days which follow, who will bear the burden of the professional care of the survivors? Who will set up the sanitary controls, provide the mass innoculations, insure the safety of food and water supplies, and direct the diagnosis and treatment of those who are suffering insidious radiation illness?"

STATE LEGISLATION

Kentucky

Bills Enacted.--H.447 was approved March 25. Relating to training of Negro nurses and doctors, it provides that nothing in the law shall be construed to prohibit the giving of instruction in nursing, medicine, surgery, or other related courses of graduate grade or on the professional level, within any hospital, if the governing body of the hospital, by a majority vote of its of its members, so elects.

S.105 was approved March 29. It provides for the creation of a medical research commission to provide for a program of research in the fields of medicine, surgery and allied sciences, preventive medicine, control of diseases and all other features of medicine and surgery that affect the health and welfare of the people of the state.

GOVERNMENT SERVICES

ARMY

NEW PROFESSIONAL TRAINING OPPORTUNITIES

A greatly expanded professional training program for regular and reserve medical officers of the Army has been announced by the Surgeon General. The program calls for one thousand, nine hundred new physicians in the Regular Army and an increasing number of volunteer reserve officers on active duty. It is designed to give many more Army physicians the training to meet requirements for certification by American Specialty Boards, and to further integrate civilian and military medicine. The following five major aspects of the new program were described by the Surgeon General:

1. Physicians already resident in civilian hospitals are now eligible for commissions in the Regular Army. Those commissioned may continue their residencies with full pay and allowances and will be assigned by the Army to the civilian hospital in which they are already resident. Even in the event of a major emergency, residents will complete their training, if it is at all possible. Chances of continuing training for these men will be at least as good as those of civilian physicians in resident training. The Surgeon General's Office will commission three hundred residents under this aspect of the program in 1948, three hundred in 1949-1950 as senior residents, one hundred as residents and a hundred and fifty as junior residents.

2. Civilian interns are now eligible for commissions in the Army medical corps reserve and may continue their internship with full Army pay and allowances. Those so commissioned will undertake to accept a commission in the Regular Army on completion of their internship, and will then be permitted to compete for Army residencies in either Army or civilian hospitals. In 1948 and again in 1949, three hundred interns will be included in this phase of the training program.

3. During 1948, five hundred younger physicians will be commissioned and assigned to duty at Army hospitals in order to compete for two hundred and sixty residencies in both Army and civilian hospitals. Competitive examinations will begin in either September or October, 1948. These residencies are apportioned among the various specialties according to the needs of the Army medical corps. Resignation of officers commissioned under this phase of the program will not be accepted within one year after the date of commission.

4. One hundred and fifty commissions in the grades of major, lieutenant colonel and colonel will be offered in 1948 and an equal number in 1949 to physicians who have completed their training. This aspect of the program is not limited to those men already certified as specialists, since outstanding officers for command and staff positions are needed as well as professional men. Applicants for those commissions in higher grades will not be considered for residencies or specialty training.

5. Active reserve service for specific positions and limited periods will be offered physicians who are not interested in a Regular Army career. Those who come into the service in this manner will not be eligible for residencies, but time spent in practice under this aspect of the program may receive recognition by the specialty boards.

The program is designed to attract to a Regular Army career medical talent of the highest caliber. One year of active duty as distinguished from training duty is expected for each year of training, whether the training is received in Army or civilian institutions. Resignations will not be considered until this obligation has been fulfilled.

Training continuous until completion of the requirements for Specialty Board certification is a definite aim of the program, the Surgeon General emphasized.

The program has been presented to the Council on Medical Education and Hospitals of the American Medical Association and to the Association of American Medical Colleges. Both bodies have officially recognized the value of the program in its entirety.

Information concerning any part of the program may be obtained from the Surgeon General's Office. Address requests to the attention of the Chief of Personnel, Surgeon General's Office, Department of the Army, Washington, D. C.

INSTITUTE OF PATHOLOGY

Members of the staff of the Army Institute of Pathology presented the following papers at the American Association of Pathologists and Bacteriologists and of the International Association of Medical Museums at Philadelphia in March:

Dr. Ira Gore (Veterans Administration), Morphologic Aspects of Disseminated Platelet Thromboses.

Dr. Webb Haymaker, Pathology of Herpes Simplex Encephalitis; Report on Three Proved Cases.

Dr. Lent C. Johnson, Histogenesis of Myositis Ossificans.

Dr. Hans F. Smetana, Histologic Lesions Encountered in Regional Enteritis.

The following lectures or seminars were given by members of the staff during February:

Dr. Elson B. Helwig at Georgetown University, Pigmentation.

Dr. Lent C. Johnson at Arlington Hospital, Va., Recent advances in Nephritis; and before the Alexandria Medical Society, Dynamic Pathology of Eclampsia.

Dr. Webb Haymaker at Mount Alto Hospital, Landry-Gullain-Barre Syndrome.

Lieut. John Schut at Walter Reed General Hospital, Hereditary Ataxias.

Dr. Ira Gore at Mount Alto Hospital Myocarditis.

THE ARMY WINTERED WELL

Throughout the past winter, the Army was in better health than during any like period for which comparable statistics are available. The average January hospital admission rate for the past quarter-century was a little over 14 per thousand troops per week, while the weekly rate for January 1948 was 9.4 per thousand; the February rate was 50 per cent lower than the average for the past twenty-five years. The normal peak load of illness in the Army, as elsewhere, occurs usually in February, due to the increase in respiratory infections. While the present year was no exception, influenza was an almost negligible quantity in the total illness, and other respiratory diseases added comparatively few cases.

OFFICERS REQUEST GRADUATE TRAINING

The following officers have requested graduate training, and their requests were approved at the meeting of the Advisory Board of the Bureau of Medicine and Surgery on March 11: Lieutenants (jg) Walter R. Holland, residency in anesthesia at the Naval Hospital, St. Albans, N.Y.; Neal D. Sanborn, residency in internal medicine at a naval hospital and William R. True, residency in ophthalmology at a naval hospital; Lieutenants Berwyn H. Force, course in internal medicine at the University of Pennsylvania; Robert K. Moxon, residency in internal medicine at the Naval Hospital, Philadelphia; William S. Stryker, residency in children's orthopedics at the Shriners Hospital for Crippled Children, Philadelphia, and David J. McMurray, residency in otolaryngology at the Naval Hospital, Philadelphia; Lieut. Comdr. Bruce M. Shepard, residency in surgery at the Naval Hospital, St. Albans, N.Y.; Comdr. Edward P. Irons, residency in otolaryngology, Naval Hospital, Philadelphia; James W. Gustin, Jr., residency in surgery at Naval Hospital, St. Albans, N.Y.; Joseph J. Timmes, course in surgery at the University of Pennsylvania and Shakeeb Ede, residency in surgery at the Naval Hospital, Long Beach, Calif.

RESERVE MEDICAL DIVISIONS

Naval Reserve volunteer medical divisions have been organized in Charleston, Huntington and Wheeling, West Virginia; the commanding officers are Captains Russel Kessel, William M. Strange and William M. Sheppe, respectively. Other divisions are expected to be organized at Bluefield and Parkersburg. The goal for each medical division includes seventy-five medical officers, fifty nurses, two hundred and fifty hospital corpsmen and fifteen medical service corpsmen.

NUMBER OF CASES OF SCRUB TYPHUS

Preliminary reports indicate that there were 6,850 cases of scrub typhus among Army personnel during World War II and that 280 persons died of the disease; during the same period the Navy reported 613 cases with 28 deaths. The Navy has developed a method for preparing a purified suspension of the causative organism, Rickettsia orientalis, which when used as a vaccine has protected animals against 20,000 times the amount of live organisms sufficient to kill 1 animal. The Navy considers it likely that this discovery will lead to the development of a vaccine that will prevent scrub typhus and also will be useful as a diagnostic aid. Scrub typhus is most prevalent in Japan, Formosa, Malaya and Burma.

AWARDS AND COMMENDATIONS

Dr. Edward A. Strecker

Dr. Edward A. Strecker, professor of psychiatry and head of the department of consultation, University of Pennsylvania, was awarded the Presidential Certificate of Merit at ceremonies held the evening of January 16 at the Naval Hospital, Philadelphia. Dr. Strecker received the award in recognition of his services as consultant to the Surgeon General of the Navy since May 6, 1943.

Commander William J. James

Comdr. William J. James, (MC), U.S.N., chief of the Neurosurgery Department, Naval Medical Center, Bethesda, Md., has been awarded the Bronze Star for meritorious service as medical officer on board the U.S.S. *Randolph* in action against the Japanese forces in the Pacific area from February 16 to July 26, 1945. Dr. James served as senior medical officer and flight surgeon on the *Randolph.* He graduated from St. Louis University School of Medicine in 1937 and entered naval service Aug. 14, 1939.

PUBLIC HEALTH SERVICE

DR. SCHEELE BECOMES SURGEON GENERAL

Dr. Leonard A. Scheele was sworn in as Surgeon General of the Public Health Service at ceremonies held Monday, April 5, in the Federal Security Agency auditorium, Washington, D. C. Dr. L. R. Thompson, a former Assistant Surgeon General, administered the oath of office; also attending were Dr. Thomas Parran, retiring Surgeon General, Oscar Ewing, Administrator of the Federal Security Agency, and representatives of the American Medical Association, medical schools and government agencies.

FULL TIME CANCER DETECTION CENTER

One of the first full time cancer detection centers in the United States is being operated by the cancer control branch of the National Cancer Institute, Public Health Service, as a demonstration unit at Hot Springs, Ark. The center is located in buildings of the Public Health Service rapid treatment center for venereal disease, whose patients it examines exclusively. The staff includes Dr. Byron E. Watts, chief, and other Public Health Service personnel: two physicians trained in cancer diagnosis at Memorial Hospital, New York; two medical officers trained in cytologic technic under Dr. George N. Papanicolaou, and a nurse officer who arranges for the follow-up of patients with lesions. The project is under the supervision of Dr. Allan Koplin, chief, Field Operation Unit, Cancer Control Branch. Specially trained clerical workers take a routine screening history, which is then amplified by the physician. By March 1, 800 patients, all women, had been given complete physical examinations and the cytologic test for cancer. Thus far 8 cases have been discovered. Examination of male patients will be started later.

CANCER RESEARCH FACILITIES

The National Advisory Cancer Council at a meeting in Washington, D. C., March 12 named twenty-one universities and hospitals as being in great need of more facilities to carry on desired scientific projects in cancer research. The council recommended that the $2,053,000 available in funds of the National Cancer Institute for the construction of nonfederal research facilities be stretched as far as possible and where most needed among the institutions named. More than $8,000,000 was involved in the requests favorably considered by the council. The two largest requests for construction grants that were recommended were $1,000,000 each to the University of California Medical School, Berkeley, and College of Physicians and Surgeons, New York, for construction and equipment for the Cancer Research Institute and the Cancer Research Laboratory, respectively.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ARIZONA

State Medical Meeting. – The Arizona State Medical Association will hold its annual meeting May 19-21 at the Westward Ho Hotel, Phoenix. The guest speakers will be:

J. Dewey Bisgard, Omaha, Cancer-Ulcer Problem of the Stomach.
Jerome W. Conn, Ann Arbor, Mich., Management of Diabetic Coma.
Irvin E. Hendryson, Denver, Early Diagnosis of Poliomyelitis.

The Woman's Auxiliary will meet at this time.

CALIFORNIA

Typhoid Carrier in High School Cafeteria.--Twenty-one cases of typhoid fever, type C, occurred in high school students in Ukiah, Mendocino County, during January. Epidemiologic investigations by the California Department of Public Health have disclosed that the chief cook in the school cafeteria was a typhoid carrier. Control measures taken at the time of the outbreak included (1) pasteurization of the community's milk supply, (2) closing of the school cafeteria and (3) immunization of the entire high school student body.

Report of Eye Bank.—The Stanford Eye Bank reported March 12 that it had provided thirty-three corneas for eye graft operations during its first year of operation. All qualified eye surgeons on the Pacific Coast have been invited to make use of the facilities of the bank. Corneas collected and preserved by the eye bank are distributed without cost to either patient or surgeon, except for a small service fee for cost of handling the tissue. Information on the correct procedure for registration of donors can be secured by writing to the Stanford Eye Bank, 2398 Sacramento Street, San Francisco.

CONNECTICUT

Doctors Aid Vienna Patients.--An anonymous group of Greenwich physicians is aiding patients in a Vienna, Austria, hospital by providing, through the Greenwich Committee for Foreign Relief, drugs and instruments for the use of fellow professional men in the Austrian capital. Mrs. Samuel K. Meek, committee chairman, recently announced that a shipment prepared by the physicians themselves and sent through the committee has already arrived in Vienna, where a grateful official is utilizing most of it for the care of infants and children.

Yale to Sponsor Graduate Education.—The expansion of Yale facilities for graduate education for Connecticut physicians has been announced, and the appointment of Dr. William R. Willard, New Haven, assistant professor of public health, as associate dean in charge of graduate medical education. Dr. Willard graduated from Yale University School of Medicine, New Haven, in 1934 and received a doctor of public health degree in 1937. He has been deputy state health officer for Maryland and a surgeon of the U.S. Public Health Service. The Connecticut State Medical Society is cooperating in the establishment of the deanship. The expanded program has two aims; (1) provision for short and long refresher courses for Connecticut physicians, and (2) assistance to small Connecticut hospitals in training resident physicians who are preparing to become specialists

DISTRICT OF COLUMBIA

Personal.--Dr. W. Montague Cobb, associate professor of anatomy, Howard University College of Medicine, has been appointed head of the department of anatomy. He is a graduate of Howard University, 1929.

University Opens New Hospital. – George Washington University took possession of its new four hundred bed hospital March 19. The hospital occupies a city square, contains one hundred and twenty single and one hundred and eight double rooms, eighteen wards and forty beds for resident physicians and interns, six air-conditioned major operating rooms, and three smaller ones, nine air-conditioned delivery rooms, nurseries, noise abatement devices, and motion picture equipment to record operating room technics. A large amount of space will be devoted to laboratories and research units. Built at a cost of about $3,897,000, of which $2,820,000 was for construction and fixed equipment and about $850,000 for site acquisition, the outlay per patient bed, estimated on basic cost, was about $8,370. The university, which will staff the hospital, is providing movable equipment and furnishings to cost about $970,000.

ILLINOIS

Chest Physicians Meeting.—The annual meeting of the Illinois Chapter of the American College of Chest Physicians will be held at the Palmer House, Chicago, May 10. The guest speaker will be Dr. Roy A. Wolford, Veterans Administration, Washington, D. C., " The Program of the Veterans Administration on Diseases of the Chest. "

Chicago

Dr. Fulton to Lecture. – The fifth annual D. J. Davis Lecture on Medical History will be given by Dr. John F. Fulton, Yale University School of Medicine, New Haven, Conn., on April 28 in room 221 of the University of Illinois College of Medicine. His subject is " The Position of William Withering in the History of Scientific Medicine.

Annual Zeit Memorial Lecture.—The fifth annual Robert Frederick Zeit Memorial Lecture, sponsored by the Chi Chapter of Alpha Kappa Kappa, will be delivered by Dr. Irvine McQuarrie, professor of pediatrics, University of Minnesota, Minneapolis, in Thorne Hall at Northwestern University, Lake Shore Drive, April 22 at 4 p.m. Dr. McQuarrie, who recently made an extensive trip through the Orient, will speak on " Medical Problems and Practice in Japan. "

Society of Internal Medicine.—The April meeting of the Chicago Society of Internal Medicine will be held April 26 at the Drake Hotel at 8 p.m. A panel on "Massive Albumin Therapy in Disease of the Liver " will be presented by Dr. Robert M. Kark, Chicago, and the invited speakers, Drs. George J. Gabuzda, Chicago, Gordon R. Morey, Westchester, Ill., Robert E. Johnson, Tinley Park, Ill., and Mr. Frank C. Consolazio, Chicago. John S. Gray, Ph.D., Chicago, has been invited to speak on "The Physiology of Dyspnea. "

University Given Bassoe Portrait.—A portrait of the late Dr. Peter Bassoe was presented to the University of Illinois College of Medicine March 26 by the Central Neuropsychiatric Association. The portrait, painted by Oskar Gross, will be hung in the Quine Medical Library. Dr. Bassoe, who died Nov. 5, 1945, was the founder and first president of the Central Neuropsychiatric Association and was a member of a committee appointed by the late Governor Horner to draw plans for the establishment of the Illinois Neuropsychiatric Institute.

KENTUCKY

Society News.—The Jefferson County Medical Society on April 19 will hear Dr. Willard R. Cooke, professor of gynecology and obstetrics at the University of Texas Medical Branch, Galveston, Texas, on "Rationalism in Regard to Gynecologic Operations." He will speak at a dinner meeting at the Pendennis Club at 7 p.m. under the sponsorship of the Louisville Obstetrical and Gynecological Society

LOUISIANA

Alumni Organize.—At a meeting of the Louisiana State University School of Medicine, New Orleans, on March 18, the New Orleans District of the Medical Alumni Association was organized. About seventy-five of over three hundred and fifty alumni practicing in New Orleans were present to hear Dean Vernon Lippard discuss plans for expansion of the school. Officers elected were Dr. Jack R. Anderson, president, and Dr. Philip L. Cenac, secretary-treasurer. Meetings of the association are to be held quarterly.

Graduate Course in Basic Sciences. -- A graduate course in the basic sciences as applied to orthopedic surgery has been established at Tulane University of Louisiana School of Medicine, New Orleans. The course has been made available for the first time to physicians other than those associated with the orthopedic clinics at Charity Hospital, the Veterans' Hospital, Touro Infirmary and Tulane. Divided into four categories, physiology, pathology, bacteriology and anatomy, the course involves twenty-five weeks of instruction. Dr. Jack K. Wickstrom, instructor in orthopedics, is in charge of the course.

MASSACHUSETTS

Appoint Professor of Anatomy.—Dr. Arthur M. Lassek, head of the department of anatomy at the Medical College of the State of South Carolina, Charleston, since 1932, has been appointed Waterhouse professor of anatomy at the Boston University School of Medicine effective July 1, succeeding Dr. Jesse L. Conel, a member of the faculty of the university's school of medicine since 1923. Dr. Lassek previously taught at the University of Washington, Seattle; Northwestern University Medical School, Chicago, and the University of South Dakota School of Medical Sciences, Vermillion. Dr. Conel is retiring to continue his research on the development of the cerebral cortex at different ages of childhood. He plans to publish two more volumes on this subject and is working now on the child at the age of 14 months.

Multiple Sclerosis Clinics.--The first research clinic in a projected series to investigate multiple sclerosis was opened March 29 at the Beth Israel and Boston State hospitals, Boston, through a grant from the National Multiple Sclerosis Society. The Boston clinic will do research on the cause of the disease. Another clinic will be opened in the Albany Hospital, Albany, N. Y., where neurologists of Albany Medical College will cooperate with the New York State Department of Health in conducting the research. As soon as funds permit, the society will establish multiple sclerosis research clinics in leading cities across the country. The project of research clinics has been approved by the society's medical advisory board, of which Dr. Tracy J. Putnam, chief and attending surgeon, department of neurosurgery, Cedars of Lebanon Hospital, Los Angeles, is chairman, and Dr. Thomas M. Rivers, director of Hospital of the Rockefeller Institute for Medical Research, is vice chairman.

MISSOURI

The Seelig Fund.--Friends and colleagues of Dr. Major G. Seelig, St. Louis, have contributed funds to establish an annual lectureship in his honor at Washington University School of Medicine, St. Louis Dr. Seelig retired from the staffs of Washington University Medical School and Barnard Free Skin and Cancer Hospital in January. For twenty-seven years he has been a member of the faculty at the medical school, and for the past seventeen years he had been conducting cancer research. Dr. and Mrs. Seelig are living now at 54 Belleau Avenue, Atherton, Calif.

NEW JERSEY

Society News.--The New Jersey Proctologic Society recently elected Dr. Frank S. Forte, Newark, as president, and Dr. Urban R. Finnerty, Montclair, as secretary.

Organize Allergy Society.--Thirty-three charter members, representing all parts of the state, attended the organizational meeting of the New Jersey Allergy Society February 18 at the Academy of Medicine in Newark. Dr. Nathan Schaffer, East Orange, was elected president; Dr. William C. Greifinger, 31 Lincoln Park, Newark, secretary; and Dr. Frank L. Rosen, Newark, treasurer. Membership is open to physicians interested in the practice of allergy who are members of their county societies. The program of the first scientific meeting at the Academy of Medicine in Newark, May 12, will consist of a panel discussion of hay fever.

NEW YORK

Report of Committee on Cerebral Palsy.--The Joint Legislative Committee to Study the Problem of Cerebral Palsy has presented a report to the Legislature outlining a program to provide medical care, rehabilitation and special education for victims of the disease. The report recommended the establishment of seven centers for diagnosis and evaluation, three within New York City; revision of the formula for state aid to local school districts as it pertains to special education for the physically handicapped; the construction of a state hospital home for those too severely handicapped to live at home; an increase in the number of such cases to be cared for at the New York State Reconstruction Home at West Haverstraw; the development of an enlarged training center and a practice school for teachers of handicapped children at Buffalo State Teachers College; increased training of medical and other personnel needed for the full care of such children, and the immediate development of a plan to discover the names of all children in the state who suffer from orthopedic handicaps. Assemblyman Abraham Schulman Rochester, chairman of the committee, reported that the number of known cases of cerebral palsy among children in the state is 6,000.

Dr. Claude H. Barlow Awarded Certificate of Merit.—The President of the United States has awarded the Certificate of Merit to Dr. Claude H. Barlow, formerly of Trumansburg, for outstanding fidelity and meritorious conduct in aid of the war effort against the common enemies of the United States and its allies. Dr. Barlow went to Egypt in 1929 at the request of the Rockefeller Foundation to conduct research on bilharziasis. He also found that snails common to Egyptian canals and ponds are host to the Bilharzia (Schistosoma) parasite. During the recent war he infected himself with the organism in an effort to find a cure for the disease.

New York City

Personal.--At the January meeting of the Pan-American Ophthalomological Association in Havana Cuba, Dr. Arthur A. Knapp read a paper on "Treatment of Blinding Diseases of the World."

Residencies Available.--The new psychiatric division of the Kings County Hospital, Brooklyn, has a number of residents' positions available for appointment together with opportunities available for degrees in graduate work. The hospital is affiliated with Long Island College of Medicine. The standard resident's salary is $1,560 with maintenance. For information address the director of psychiatry, Dr. Sam Parker, Kings County Hospital, Albany Avenue and Winthrop Street.

Appointments and Promotions.--The following appointments to the faculty of New York University College of Medicine have recently been made: Thomas N. Graham, New York, assistant clinical professor in the department of dermatology and syphilology; Edgar Lawrence and Harry F. Wechsler, New York, assistant clinical professors in the department of medicine; Isidor C. Rubin, Hempstead, N. Y., clinical professor in the department of obstetrics and gynecology; Alfred J. Vignec, New York, clinical professor, department of pediatrics; Allan L. Grafflin, Boston, research associate, department of pharmacology; L. Corsa Reid, New York, associate professor, department of physiology, and William Watson, New York, associate professor, department of physiology. In the postgraduate division appointees from New York include Ira I. Kaplan, clinical professor, and Rieva Rosh, assistant clinical professor of radiology; Bela Mittelman, assistant clinical professor of psychiatry; Sidney Rubenfeld, associate clinical professor of radiology, and Charles R. Rein, associate clinical professor of dermatology and syphilology.

Promotions were as follows: Israel S. Freiman to assistant clinical professor, department of neurology; William M. Dick, associate clinical professor, and Miles Atkinson, assistant clinical professor, department of otorhinolaryngology; Charles Gottlieb, professor of radiology and chairman of the department; William P. Anslow Jr. and Laurence G. Wesson, assistant professors, department of physiology; George G. Deaver, professor of clinical rehabilitation, department of rehabilitation and physical medicine.

Manager of Toxicology Department.--Dr. Arthur G. Cranch retired January 1 as manager of the industrial toxicology department of Union Carbide & Carbon Corporation after twenty-eight years' service with the organization and is being retained as a medical consultant on a part time basis. Dr. Thomas W. Nale, New York, assistant manager of the department for two years, succeeds Dr. Cranch.

Society News.--The Brooklyn Urological Society has recently elected Dr. Frank C. Hamm, Brooklyn, president, and Dr. Harold B. Hermann, Brooklyn, secretary-treasurer.

OHIO

Seminar in Dermatology.--The Society of General Physicians of Cincinnati in collaboration with the Department of Dermatology, University of Cincinnati, will offer a seminar on the treatment of skin disease May 4-27, consisting of sixteen hours of lectures, demonstrations and case presentations. Thirteen members of the department will present the course. Lectures will be so given at the Cincinnati General Hospital that patients may be brought from the dermatology wards to the classroom.

TEXAS

Fund for Cancer Research.--The Damon Runyon Cancer Research Fund and the Variety Club Foundation of Texas recently gave jointly $100,000 to Southwestern Medical Foundation.

Dr. Williams Honored.--Dr. J. Rice Williams, Houston, was guest of honor at a meeting of associates and friends in Houston January 18. A service pin was presented to him in recognition of his fifty-four years as a member of the medical profession; in addition, he was cited for his work in civic affairs. Dr. Williams graduated from the University of Tennessee College of Medicine, Memphis, in 1894 and has practiced in Houston since 1904; since 1938 he has been speaker of the house of delegates of the state medical association.

Appoint Director of Cancer Hospital.--Dr. Charles L. Spurr, formerly on the faculty of the University of Chicago, has been appointed internist and director of the M. D. Anderson Hospital for Cancer Research, Houston. He was graduated from the University of Rochester School of Medicine and Dentistry in 1940 and was instructor at the University of Chicago for four years before serving in the U. S. Navy.

Dr. Gilbert H. Fletcher, who made a tour of European hospitals to observe methods of radiation therapy, has been appointed radiotherapist at the hospital. He was graduated from the University of Brussels in 1941, was an instructor at Cornell University Medical College, New York, from 1941 to 1945 and was radiologist in the United States Army from 1945 to 1947.

WEST VIRGINIA

State Medical Association Meeting.--The annual convention of the West Virginia State Medical Associatiin will be held at the Hotel Prichard, Huntington, May 10-12. An innovation will be round table breakfasts at which matters of general interest will be discussed. Guest speakers will be:

MONDAY

J. Warrick Thomas, Richmond, Va., Cutaneous Allergies.

Henry M. Goodyear, Cincinnati, Use of Chemotherapy and Antibiotics in the Treatment of Upper Respiratory Infections.

John B. Barnwell, Washington, D.C., Streptomycin and Tuberculosis.

Jean S. Felton, Oak Ridge, Tenn., Industrial Medicine.

Sophia J. Kleegman, New York, Diagnosis and Treatment of Infertility in Women.

TUESDAY

Perrin H. Long, Baltimore, Treatment of Infectious Hepatitis.

Emil Novak, Baltimore, Management of the Menopause.

Francis F. Schwentker, Baltimore, Pneumonia in Children.

J. Edwin Wood, Charlottesville, Va., Use of Low Sodium Diets in Treatment of Hypertension.

Russell L. Haden, Cleveland, Gout.

George F. Lull, Chicago, Secretary and General Manager, American Medical Association, Trends in Medical Service.

WEDNESDAY

Austin I. Dodson, Richmond, Va., Recent Advances in Urology.

Miller Francis Turney, Brooklyn, Cervical Disks.

Fred S. Rankin, Lexington, Ky., Surgical Treatment of Cancer of the Lower Gastrointestinal Tract.

J. Steward Rodman, Philadelphia, Carcinoma of the Breast.

The annual meeting of the Woman's Auxiliary will be held at the Frederick Hotel.

GENERAL

Hearing Society Changes Address.--The American Hearing Society, which has been housed for twenty-five years in the Volta Bureau Building, 1537 Thirty-Fifth Street N.W., on April 1 moved to 817 Fourteenth Street N.W., Washington, D.C.

Society News.—At the annual session of the American Academy of Pediatrics, Dallas, Texas, in December, Dr. John A. Toomey, Cleveland, was installed as president. Dr. Clifford G. Grulee, Evanston, Ill., continues as secretary.

Pharmaceutical Convention in Cuba. — The convention of the American Pharmaceutical Manufacturer's Association met April 12-14 at the Hotel Nacional de Cuba, Havana. The association's research award was presented to Dilworth Wayne Woolley, Ph.D., of the Rockefeller Institute, for his scientific achievements in nutrition. Dr. Roscoe L. Sensenich, South Bend, Ind. President-Elect of the American Medical Association, and Dr. Austin Smith, Chicago, Secretary of the Council on Pharmacy and Chemistry, discussed basic research of drug therapy.

Meeting of American Hearing Society.--The National Conference of the American Hearing Society will be held at the William Penn Hotel, Pittsburgh, May 19-22 under the presidency of Dr. C. Stewart Nash. Physicians speaking at the conference include:

Dean M. Lierle, Iowa City, Recent Advances in the Medical Treatment of Deafness.
Morris Fishbein, Editor, THE JOURNAL, Chicago, Is It Worth Hearing?
Emily A. Pratt, Washington State Department of Health, Prevention and Conservation of Hearing.

Among other subjects to be discussed are goals of group activities in hearing societies, hearing aid advisory centers, aural rehabilitation of adults and educational program for children with a hearing loss.

International Congress on Obstetrics and Gynecology.—The American Committee on Maternal Welfare in conjunction with the fourth American Congress will sponsor an International Congress on Obstetrics and Gynecology at the Hotel Pennsylvania, New York, May 14-19, 1950. Preliminary plans include a program in which each morning will be devoted to formal presentation and discussion of a general topic and each afternoon will be given over to round table and informal discussion of the subjects. Clinics will be developed in the medical centers of the country so that foreign visitors may acquaint themselves with the advances of American institutions. Inquiries should be addressed to the general chairman, Dr. Fred L. Adair, 24 West Ohio Street, Chicago 10.

Student Health Association. — The American Student Health Association will hold its annual meeting May 6-8 at the Hotel Statler, Detroit, under the presidency of Dr. Harry D. Lees, Philadelphia. Among the speakers will be:

Joseph A. Johnston, Detroit, Metabolism of Adolescence.
Robert B. Clarke, Ann Arbor, Mich., Neurologic Problems of College Students.
Donald M. Pillsbury, Philadelphia, Management of Acute Eruptions of the Skin.
E. Lee Shrader, St. Louis, and William G. Beadenkopf, Chicago, Influenza Vaccine.
Chris J. D. Zarafonetis, Ann Arbor, Mich., Infectious Mononucleosis.

A panel discussion of "The Changing Problems of Administration in Student Health Services" will conclude the program.

Life Insurance Medical Research Fund.--Thirty-one hospitals, medical colleges and research clinics in eighteen states and Canada will share $484,790 in grants from the Life Insurance Medical Research Fund during 1948 for research in heart disease. In addition, fourteen individual physicians will receive $52,600 in fellowships, two of them for work outside their country. Fellowship stipends vary from $2,500 to $4,000. The awards bring the total sum made available for aid to medical research by the Life Insurance Medical Research Fund since its organization in December 1945 to approximately $1,800,000. The fund is supported by one hundred and forty-nine life insurance companies in the United States and Canada and is administered through a board of directors representing the life insurance business and an advisory council of medical research experts. Dr. Francis B. Dieuaide, clinical professor of medicine, Columbia University College of Physicians and Surgeons, is the scientific director.

Courses for Medical Record Librarians.—A second workshop for registered record librarians is to be held in Denver May 24-28 at the Cosmopolitan Hotel. This will be presented by the Extension Course Division of the American Association of Medical Record Librarians with the cooperation of the University of Colorado Medical Center and the Colorado Association of Medical Record Librarians. A regular one week extension course will be given at St. Louis University, St. Louis, from June 14-18. This course is designed to present fundamentals for proper understanding of record work, and to assist those who are of necessity working with the Standard Nomenclature of Disease without having received training in its use. Enrolment is open to all persons working in the medical record department of a hospital. Further information about either of these courses may be obtained from Mrs. Edna Huffman, Field Representative, Extension Course Division, American Association of Medical Record Librarians, 22 East Division Street, Chicago 10.

Drs. Taussig and Blalock to Receive Award.--The 1948 Passano Foundation award will be presented to the Taussig-Blalock team which developed the operation popularly known as the "blue baby operation". Presentation of the $5,000 cash award will be made June 23 at the Palmer House, Chicago, during the Annual Session of the American Medical Association. Dr. Helen B. Taussig is associate professor of pediatrics and Dr. Alfred Blalock is professor of surgery at Johns Hopkins University School of Medicine, Baltimore. Since this operation was first undertaken in November 1944 more than 600 patients drawn from all parts of the world have been operated on at Johns Hopkins Hospital alone.

The Williams & Wilkins Company of Baltimore established the Passano Foundation in 1944 to aid in the advancement of medical research, especially research which promises clinical application.

Marriages

MARTIN S. KLECKNER Jr., Allentown, Pa., to Miss Barbara A. Luse of Oil City, February 7.

DAVID LATHAM TABER, Rockville Centre, N. Y., to Miss Jean Dennison of Gloversville, Dec. 17, 1947.

CLARENCE E. PHILLIPS, Sunbury, Pa., to Miss Jean R. Kiger, of Northumberland, at Williamsport, Md., Dec. 28, 1947.

DAVID J. ROSE to Miss Edith R. Sprung, both of New York, February 15.

Deaths

Midian Othello Bousfield ⊕ Chicago; born in Tipton, Mo., Aug. 22, 1885; Northwestern University Medical School, Chicago, 1909; past president and since 1934 chairman of the commission on hospitals and medical education of the National Medical Association; fellow of the American Public Health Association and of the Institute of Medicine of Chicago; first Negro member of the board of education and former director for Negro health of the Rosenwald Fund; served as consultant to the U.S. Children's Bureau and the Chicago Board of Health; a member of advisory committees to various national, state and local government agencies; formerly a member of the planning committee, White House Conference on Children; in the field of social work served the Chicago and the National Urban League and the Y.M.C.A.; vice president and medical director of the Supreme Liberty Life Insurance Company; member of the board of trustees of Provident Hospital; during World War II organized Station Hospital 1 at Fort Huachuca, Ariz., of which he became a commanding officer; for his services received the Legion of Merit; retired Nov. 9, 1945 with the rank of colonel; died February 16, aged 62, of angina pectoris.

Thomas Dwight Sloan, Charlottesville, Va.; born in Ripley, Tenn., Dec. 6, 1879; University of Virginia Department of Medicine, Charlottesville, 1909; instructor in chemistry at the University of Virginia from 1905 to 1909; engaged in medical missionary work in Nanking, China, where he served as professor of clinical medicine at the University of Nanking and superintendent of the University Hospital; medical superintendent of the Peking Union Medical College Hospital from 1922 to 1925; in 1925 became assistant director in charge of the Lakeside Hospital in Cleveland and later superintendent of the New York Post-Graduate Medical School and Hospital in New York; formerly medical superintendent of the Flagler Hospital in St. Augustine, Fla.; died January 10, aged 68.

Franklin Ramsdell Hughes ⊕ Cape May, N.J.; born in 1879; Hahnemann Medical College of Philadelphia, 1906; past president of the Cape May County Medical Society; during World War I served on the county advisory board; an examining physician on a local board of the selective service during World War II; formerly county coroner; medical examiner for the schools of Cape May; associated with the boards of health of the lower township West Cape May and Cape May for many years; medical officer in charge of the U.S. Public Health Service Relief Station from 1926 to 1945; on March 25, 1945 awarded an honorary degree of Doctor of Science by his alma mater; died in the Hahnemann Hospital, Philadelphia, February 5, aged 68, of aneurysm of the aorta.

Edwin Hulme McIlvain, Philadelphia; born in Millville, N.J., in 1887; Temple University, School of Medicine, Philadelphia, 1912; member of the American Medical Association; since 1915 medical director of the Budd Company; for many years lecturer on medical jurisprudence at his alma mater; a director of the Philadelphia Health and Tuberculosis Association; a vice president of the Tioga National Bank; a member of the city chamber of commerce; died January 15, aged 60, of hypertensive cardiovascular renal disease.

John E. Womack ⊕ Staunton, Va.; Medical College of Virginia, Richmond, 1909; served as secretary treasurer of the Augusta County Medical Society; during World War I a captain in the medical corps of the U. S. Army and during World War II chairman of the medical examining board of the local selective service board; at one time city health officer; affiliated with the King's Daughters' Hospital, where he died January 7, aged 65, of cerebral hemorrhage, arteriosclerosis and hypertension.

Robert Herbert Wright, Newton Center, Mass.; University of Virginia Department of Medicine, Charlottesville, 1900; member of the American Medical Association and of the Medical Society of Virginia; formerly associate professor of ophthalmology at the Medical College of Virginia in Richmond; fellow of the American College of Surgeons; formerly on the staff of the Stuart Circle Hospital in Richmond; died Dec. 22, 1947, aged 68, of coronary thrombosis

Thomas Bayson Aycock ⊕ Baltimore; University of Maryland School of Medicine, Baltimore, 1924; professor of clinical surgery at his alma mater; member of the American Association for Thoracic Surgery and of the Southern Surgical Association; member of the founders group of the American Board of Surgery; affiliated with the Baltimore City Hospitals, Bon Secours Hospital and the University Hospital; died January 7, aged 52, of cerebral hemorrhage.

Linus Terrell Baker ⊕ Dixie, La.; University of Nashville (Tenn.) Medical Department, 1908; served on the staff of Highland Sanitarium in Shreveport; awarded the Silver Beaver posthumously by Norwela Council of Boy Scouts of America for outstanding service to boyhood; died suddenly January 26, aged 62, of heart disease.

William Hulbert Banks ⊕ Yakima, Wash.; Keokuk (Ia.) Medical College, College of Physicians and Surgeons, 1900; served on the staff of St. Elizabeth's Hospital; died Dec. 24, 1947, aged 73.

Louis Henry Behrens ⊕ St. Louis; Missouri Medical College, St. Louis, 1894; past president of the St. Louis Medical Society; fellow of the American College of Physicians; specialist certified by the American Board of Internal Medicine; affiliated with the Barnes, Deaconess, Jewish and DePaul hospitals; director of the Municipal Opera; died January 1, aged 79, of myocardial infarction.

Freeman Elisha Bennett, Belfast, Maine; Medical School of Maine, Portland, 1899; formerly a member of the state legislature; died Nov. 29, 1947, aged 77, of pulmonary edema and Parkinson's disease.

Charles Frank Boucek, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1896; member of the staff of St. John's General Hospital; director of the Provident Trust Company; president of the Dixon Motor Company; died January 17, aged 72, of osteosarcoma.

Edward Sinnet Bowman, Davenport, Iowa; State University of Iowa College of Medicine, Iowa City, 1893; died January 4, aged 79.

Mary Alice Brosius, Washington, D. C.; Columbian University Medical Department, Washington, 1894; Southern Homeopathic Medical College, Baltimore, 1895; on the courtesy staff of the Homeopathic Hospital; died January 20, aged 89, of gastrointestinal hemorrhage.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 2, 1948.

Annual Meeting of British Medical Association

The next annual meeting of the British Medical Association will be held at Cambridge from June 25 to July 2 under the presidency of Sir Lionel Whitby, regius professor of physic in the university. The scientific work will be divided into nineteen sections, which will meet on the three days, June 30 - July 2. The sections, with their presidents, are as follows: medicine, Dr. L.B. Cole; surgery, Mr. Vernon Penn Pennell; obstetrics and gynecology, Mr. J.R. Campbell Canney; anethetics, Dr. Z. Mennell; child health, Sir Leonard Parsons; diseases of the chest, Dr. R.R. Traill; occupational health, Dr. Donald Stewart; ophthalmology, Mr. O. Gayer Morgan; orthopedics, Professor T.P. McMurray; pathology and bacteriology, Professor H.R. Dean; physiology including biochemistry, Professor A.C. Chibnall, F.R.S.; preventive medicine, Dr. G.F. Buchan; radiology, Dr. S.C. Shanks; anatomy and anthropology, Professor H.A. Harris; dermatology, Dr. C.H. Whittle; neurology and psychiatry, Professor E.D. Adrian; nutrition, Professor R.A. McCance; otorhinolaryngology, Mr. V. E. Negus, and pharmacology, Professor E. B. Verney, F.R.S.

The following are among the subjects chosen for discussion: thiouracil in the treatment of thyrotoxicosis ; the modern management of macrocytic anemias; surgery in hypertension; tuberculous adenitis; cancer of the breast; the problem of infertility and its treatment; analgesia in midwifery; management of the third stage of labor and its complications; anesthesia for thoracic surgery; neonatal mortality; malignant disease in infancy and childhood; bronchial carcinoma; relation between upper respiratory infection and radiologic infection and radiologic appearances of the lungs; surgery of congenital heart disease; the present treatment of pneumonia; human relations in industry; aviation medicine; ophthalmic problems associated with gynecologic and obstetric conditions; the significance and interpretation of refraction; contact lenses; the heredity of eye diseases; nutritional eye diseases; clinical significance and treatment of lesions of the intervertebral disk; the operative treatment of fractures; injection treatment of osteoarthritis; advances in our knowledge of the Rhesus factor; acute and subacute hepatitis; recent work on proteins and its medical applications; plasma and blood derivatives in the treatment of burns; occupational dermatitis; investigation and treatment of epilepsy of late onset; early recognition and management of senile degeneration, affections of the sphenoid sinus and their treatment; antihistaminic substances, and agents determining and influencing the functions of the pars nervosa of the pituitary.

New Health Regulations for Air Travel

New measures to reduce the risk of aircraft or travellers by air bringing into this country disease from abroad have come into force on April 1. The speed of air travel has produced special medical problems. For instance, while a journey from India to London by sea normally takes three weeks, during which any infectious illness on board would become known and could be dealt with at the port of arrival, a passenger by air can fly from Singapore in two days and from India or South Africa in thirty-six hours. This time is much shorter than the normal incubation period of plague, cholera, yellow fever, typhus and smallpox — the diseases with which international control is mainly concerned.

An International Sanitary Convention on air travel was drawn up in 1933 and extended in 1944 to standardize the measures which may be taken for the control of infectious diseases when an aircraft passes from one territory to another. The first public health regulations for aircraft in this country came into force in 1938; with the nationalization of airfields and the changing conditions of air travel, they have now been replaced by new regulations. All incoming aircraft from places abroad will be met by medical officers. On arrival the commander of the aircraft will give the names of the places in which it has been during the last fourteen days. Passengers showing no symptoms of an infectious disease will be given a card setting out the simple precautions to observe if they fall ill within twenty-one days of arrival. These include showing the card to their physician, who thus learns that his patient has recently arrived from abroad, where he may have been exposed to infection. If there is any doubt about the nature of the illness, the physician is to inform the health officer of the area at once. Thus all cases of illness in travellers arriving by air from abroad can be traced and the health authorities can take the necessary precautions, including isolation of the sick and the supervision of contacts. The regulations also apply to aircraft which, because of emergency or other reason, alight outside a customs airport.

Dentists Reject Work Under Health Service Act

The representative board of the British Dental Association has adopted a resolution recommending that dentists refuse to enter service under the National Health Service Act until it is so amended as to include the principles advocated by the association. The resolution, which was adopted by 85 votes to 4, recorded that the board considered the proposals to be not in accord with the principles essential for a satisfactory dental service for the nation. The provisions of the act would curtail the dentist's clinical freedom to the detriment of the standard of treatment. The method of remuneration on which the Minister insists, payment of a fixed sum for each item of treatment, irrespective of any special skill employed or the amount of time involved, would put a premium on hurried and shoddy work.

Suffocation Of Infants By Milk Feeds

From time to time cases are reported from the coroners' courts of infants suffocated by inhalation of vomited milk feeds. This accident is particularly liable to occur in weakly infants, those mentally defective and those suffering from malformations such as cleft palate. In consequence of an editorial on the subject published in the Lancet, C.J. Polson and D.E. Price, of the department of forensic medicine of the University of Leeds, have published (*Lancet* 1:343 Feb 28, 1948) an analysis of recent cases coming under the jurisdiction of the Leeds coroner's court. In the years 1945-1947, 21 infants aged 9 months or less died of inhalation of vomit. The annual incidence in these three years was 6 per cent, 9 per cent and 15 per cent, respectively, of all deaths of infants, excluding stillbirths, examined in the city mortuary in these years. The depositions suggested that the same cause was responsible for the deaths of at least another 10 infants, in whom the cause of asphyxia was not ascertained or was reported to be some other factor such as convulsions. Soft feather pillows were held to be responsible for 2 deaths and probably responsible for another 4. In 1 case a shawl was believed responsible for preventing the free escape of vomit and so predisposing to its inhalation. Some of the infants were described as "windy," or prone to retch or vomit after feeds, while lying down, and it was a common practice to allow infants to suckle at the bottle when laid in their perambulators or cots. The stomach contents, several hours after the last feed, were distinctly in excess of what was ordinarily to be expected. The kind of food was recorded in 16 cases. Of these, 9 had national dried milk, 4 had "ostermilk," while 3 (of which 1 had a supplementary feed of cows' milk and water) were breast fed. One observer, Gardner, has recorded a predominance of artificially fed infants among his cases. The lesson drawn from these cases is that the preparation of artificial milk foods must be carefully performed if lumps are to be avoided. Lumps in the feed may be ingested by the infant if the nipple on the bottle is worn or its opening deliberately enlarged. But there is no information that the ingestion of lumps is in any way injurious or productive of vomiting.

BRAZIL

(From Our Regular Correspondent)

Rio de Janiero, March 5, 1948.

Tuberculin and Roentgenologic Observation in BCG Vaccinated Children

Dr. Carlos M. Valente, of the Rio de Janeiro City Health Department, published a report on 1,288 children from 12 months to 16 years of age, subjected to the Mantoux tuberculin test and roentgenographic examination. Of these children, all living in a presumably tuberculous environment, 668 had been orally vaccinated with BCG at birth and 620 had not been immunized. Most of them belonged to the poorest classes of the population. According to the tuberculin tests, a decided prevalence of weak specific hypersensitivity could be disclosed in the immunized children. Among the 620 nonvaccinated children a much higher degree of sensitivity to tuberculin was disclosed. On roentgenographic examination of the 620 children, 1.8 per cent manifested residual tuberculosis, 0.6 per cent were suspected of infection and 1.2 per cent had active forms, 5 of the children with bacteriologic evidence of tubercle bacilli. The author concludes that since a definite protection was evidenced in the BCG-vaccinated children in tuberculous environments it is advisable to expand the practice of BCG immunization as a means of fighting the high incidence of the disease in the city.

Rheumatoid Arthritis and the Heart

The problem of rheumatic and rheumatoid arthritis and its relation to the heart is being studied in Brazil, where rheumatism is not such an important etiologic factor of cardiac diseases as in colder climates. Dr. Oswaldo Lucchesi recently published an analysis of 50 cases. The group included 13 men and 37 women, the former varying between 22 and 66 years of age and the latter between 22 and 65 years of age. The duration of the disease in the whole group varied from one month to forty-one years. The clinical examination showed abnormal heart sounds in 24 patients, but in none of them did the abnormalities present any likeness to the rheumatic type. The radiographic examination disclosed 20 patients with enlargement of the heart due to hypertension. The electrocardiograms were normal in 37 patients, the remaining 13 patients exhibiting abnormalities of nonrheumatic type. Of the 14 patients with rheumatic subcutaneous nodules, 7 showed normal clinical signs, heart size and electrocardiograms. In 7 others Dr. Lucchesi reported the observation of an enlarged left ventricle due to hypertension, causing left axis deviation in 4 cases. He concludes that his observations emphasize the difference between real rheumatic fever and rheumatoid arthritis.

Sickle Cell Disease

Dr. Edgard Boturao, of the Misericordia Hospital of Santos, state of São Paulo, published a report on the hematologic study of 358 patients, including about 20 with sickle cell disease. Of the 358 patients, 64 were white, 132 mulatto and 162 Negro, with the percentage of incidence of sickle cells zero, 4.5 and 8.6, respectively. These results show that the incidence of the disease increases in direct ratio to the intensity of pigment. Dr. Boturao points out the importance of the problem at Misericordia Hospital, where 1,946, or 27.5 per cent, of the 7,078 patients admitted during the last nine months were Negroes.

Thymol Turbidity Test in Experimental Poisoning

Dr. Gilberto G. Villela, of the Oswaldo Cruz Institute, tried to ascertain the value of Maclagan's thymol turbidity test in experimental poisoning with carbon tetrachloride, chloroform, sulfanilamide and "dicumarol." Using the technic recommended bv Shank and Hoagland, he performed the tests with the serums of 24 rabbits and 18 rats. The normal values were tested with the serums of 10 rats and 8 rabbits. Since the normal blood of these animals manifested with the thymol reagent only slight turbidity (less than 0.2 unit), larger amounts of the reagent were used (0.2 to 0.4 cc. and 5 cc. Only 20 to 30 per cent of the poisoned animals showed positive reactions (around 2 units). The test was performed with blood collected during and after the poisoning (from two to fourteen days). Notwithstanding, appreciable changes were not observed. For controls, the reaction was tried on 47 normal human serums and on serums from patients with hepatic diseases. Normal serums had turbidity values below 4 units. Dr. Villela concluded that the thymol test is unable to detect hepatic damage produced by drugs like sulfanilamide, chloroform, carbon tetrachloride and "dicumarol." He also suggested that the disturbances in the serum beta-globulin responsible for the positive thymol test appearing in infectious hepatatis and in cirrhosis of the liver are probably not produced by the hepatotoxic agents.

Correspondence

EPILEPTIC PERSONS ARE UNSAFE DRIVERS

To the Editor: --There is a California law which requires that epilepsy, interpreted as " lapses of consciousness which may become chronic," be reported by the attending physician to the state board of health. In this way the epileptic driver is discovered and the use of a license is revoked. A similar law exists in the states of Oregon, Wisconsin and Indiana. The hospital of the University of California has in its files records of many dramatic instances of accidents caused by epileptic persons who have experienced seizures while driving automobiles. It is my impression that if a similar law is enacted in other states, it will mean a substantial contribution toward the prevention of motor vehicle accidents. Dr. W. E. Carter, director of the outpatient department, will provide further information on this subject. Likewise, Mr. Fred Williams, Motor Vehicle Department, Sacramento, Calif. has listed casualties known to have occurred while epileptic persons were driving .

R. WARTENBERG, M.D.
San Francisco, Calif.

RECENT ADVANCES IN TREATMENT OF PULMONARY DISEASE

To the Editor:—In the January 31 issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, page 311, the article by James Waring, M.D., on Recent Advances in the Treatment of Pulmonary Disease presents a confusing contradiction of ideas in regard to the therapy of tuberculosis with streptomycin.

In an early paragraph it is stated that "the most experienced men say that they have seen no patient who regretted taking the drug and no patient to whom they regretted giving the drug." Despite this statement, the remainder of the article is filled with warnings against the use of streptomycin. The author also mentions "complete paralysis of both lower extremities with paralysis of bladder and bowels" following intrathecal administration of streptomycin. Dr. Waring further states that some experts "are hopeful that one way or another damage to the vestibular branch of the eighth nerve can be avoided or minimized."

In discussing the future of antibiotic therapy he expresses the hope that a new and safer antibiotic will be discovered. Finally, he states that "the drug is toxic and the immediate and remote bad effects are not accurately predictable", and further mentions that the development of bacterial resistance may leave the patient with an incompletely eradicated infection. I feel that if these are effects of streptomycin therapy there certainly must be both physicians who have regretted giving and patients who have regretted receiving the drug.

RICHARD E. WINTER, M.D.,
New York.

The Letter of Dr. Winter was referred to Dr. Waring, who replies:

The statement about the gratifying experience of "the most experienced men" is correct but my critic fails to appreciate the significance and the emphasis on the phrase "the most experienced men." Perhaps these men were overoptimistic, I am not sure! At any rate, even though experience with streptomycin was admittedly limited and more time was sorely needed for adequate appraisal of its possible good effects as well as its possible bad effects, five things seemed clear as of June 1947: 1. Streptomycin had a remarkable restraining influence on the growth of the tubercle bacillus in culture. 2. It had an astonishingly beneficial influence on tuberculosis in the experimental animal. 3. It had apparently a remarkably beneficial effect on the acute exudative lesions of tuberculosis infection in man. 4. In dosage then prevailing, it frequently damaged the vestibular nerve. 5. After some weeks of its use against human tuberculosis, the organism responsible for the disease frequently showed greatly increased resistance to the antibiotic.

Since June 1947, further experience with streptomycin indicates that a dose of 1 Gm. daily for seven to nine weeks will only rarely cause damage to the vestibular nerve, a confirmation of the hope expressed in my paper. Also, this damage is not serious and is usually well compensated.

We need to know much more about "bacterial resistance." Opinion differs as to its importance, but I am fearful that unless modification of the drug itself or, less likely, modification of dosage schedule can prevent the development of bacterial resistance, the use of streptomycin in human tuberculosis may be greatly limited. This matter of bacterial resistance is disturbing not merely because the organism is no longer inhibited by the drug but for other reasons. If streptomycin is used, sputum converted from positive to negative and a good arrest apparently secured but relapse occurs at the end of one to two years, with a "bacterial resistant" organism now present in the sputum, is cure by nonantibiotic methods now more difficult? In other words, is the patient now worse off than if he had never taken streptomycin? If streptomycin is used with prompt apparent benefit without sputum conversion and without apparent arrest and in a few months a bacterial resistant organism appears in the sputum, is cure by nonantibiotic methods more difficult? Is the patient worse off than if streptomycin had not been used? When bacterial resistance appears, the disease may coincidentally get out of hand! When bacterial resistance appears, is the resistance of the patient to spread of the disease also considerably reduced? We need answers to these questions, which will be answered with time and more experience. Meantime, I reiterate all the warnings in my communication.

I suggest that my correspondent follow the injunctions in my answer to the question " home treatment." In conclusion, let me say that I never wrote anything yet that I could not improve by rewriting.

JAMES WARING, M.D.,
Denver.

Miscellany

TUMOR REGISTRIES

A tumor registry functions as a unit where all cases of certain kinds of tumor may be completely reported, including the history of the patient, roentgenograms of the area involved, stained slides of the tissue examined, a complete report of the diagnosis, and follow-up of the treatment. The first tumor registry was founded by Dr. Emory A. Codman of Boston and embraced the field of bone sarcoma. Dr. Codman soon discovered that conducting a registry was too big a task for one man, so he turned the idea over to the American College of Surgeons, which formally founded a Registry of Bone Sarcoma in 1921. This registry has been in continuous operation at the home of the American College of Surgeons in Chicago ever since, and now more than 3,000 cases of bone sarcoma are registered there. A year after the founding of this registry, the American Academy of Ophthalmology and Otolaryngology contacted the Army Medical Museum, which housed the Army Institute of Pathology, and at their suggestion the Registry of Ophthalmic Pathology was established. This was the first registry instituted by this group, which since then has become known as the American Registry of Pathology, and which now includes a total of fifteen registries. The American Registry of Pathology functions along with the Army Medical Museum as a unit of the Army Institute of Pathology in Washington, D. C.

The other fourteen registries located in the American Registry of Pathology, with the year in which they were established and the sponsor are as follows: the Registry of Otolaryngological Pathology, 1935, American Academy of Ophthalmology and Otolaryngology; the Bladder Tumor Registry, 1927, the Kidney Tumor Registry, 1940, and the Prostatic Tumor Registry, 1943, all sponsored by the American Urological Association; the Lymphatic Tumor Registry, 1925, the American Association of Pathologists and Bacteriologists, the Registry of Dermal Pathology, 1938, the American Academy of Dermatology and Syphilogy; the General Tumor Registry, 1937, the American Society of Clinical Pathologists; the Chest Tumor Registry, 1942, the American Society of Thoracic Surgeons; the Registry of Neuropathology, 1943, the American Association of Neuropathologists; the Registry of Orthopedic Pathology, 1943, the American Academy of Orthopedic Surgeons; the Registry of Gerontology, 1945, the Society for the Study of the Aged; the Registry of Radiologic Pathology, 1947, the American College of Radiology, the American Roentgen Ray Society and the Radiological Society of North America; two special registries, the Registry of Dental and Oral Pathology, 1933, the American Dental Association, and the Registry of Veterinary Pathology, 1944, the American Veterinary Medical Association. The fifteen registries located in the American Registry of Pathology provide an extraordinary accumulation of data on cancer cases, since practically every one of the registries deal with tumor tissue. Pathologic material and related clinical, laboratory, roentgenologic and other data are collected and organized so that the cases can be properly processed and made available for study and research. As living patients are followed periodically, eventually there will be a significant number of life histories of any particular condition to form a basis for definitive studies. The National Research Council, Division of Medical Sciences, has appointed a Committee on the American Registry of Pathology, which serves as an advisor in general administrative, fiscal and professional matters and passes on applications for new registries, submitting recommendations to the Surgeon General of the Army. The Committee is composed of outstanding representatives in the larger specialties. Other registries which are conducted include the Brain Tumor Registry, which is better known as the Cushing Collection at Yale University Medical School, first started by the late Dr. Howard B. Cushing. Dr. Harold Dargeon, director of the Children's Clinic at Memorial Hospital in New York City, has started a Children's Tumor Registry, and records of many unique cancers which affect younger persons are being collected there. The Children's Tumor Registry was formed one year ago for the purpose of collating data with regard to malignant tumors in children and providing a service of consultation. Material will be provided which is based on these two points and is of educational value to professional and lay groups.

Many states are organizing registries for all cases of tumor and cancer. Six states already have well organized units, and these are all part of the diagnostic pattern from which the unique cases reach the national registries. Many state divisions of the American Cancer Society are assisting in the establishment of these registries. The American Cancer Society makes a yearly grant through the National Research Council to the overhead operation of the American Registry of Pathology. The tumor registries are an important link in the overall problem of cancer: early and accurate diagnosis—followed by prompt and adequate treatment (*Cancer News*, January 1948).

Medical Motion Pictures

FILM REVIEW

Know Your Baby. 16 mm., color, sound, 400 feet (one reel), showing time ten minutes. Produced by Crawley Films, Ottawa, in cooperation with the Canadian Committee on Children for the National Film Board of Canada. Procurable on rental or purchase from the National Film Board of Canada, 400 West Madison Street, Chicago 6, and 620 Fifth Avenue, New York 20.

This is a clearly conceived and well constructed film designed to depict the ideal care of a child during the first few months of its life. In logical continuity the film illustrates the proper feeding, bathing and handling of the infant; at the same time it stresses the essential emotional relationship to be cultivated among the child, its mother and its siblings. (Inexplicably, the role of the father is omitted.) Despite minor defects the visual sequences are cogent, interesting and skilfully edited. The vocal commentaries are likewise clear and pertinent. Nevertheless, the film might advantageously be issued in a silent version appropriately subtitled so that it could be more widely shown to expectant parents and others in places where sound projectors are not readily available. The film can be highly recommended for the lay and professional instruction of all who are concerned with psychobiologic welfare of the future adult in his tenderest months of life.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Employee's Refusal to Undergo Spinal Puncture.—The petitioner filed a claim for compensation for a spinal injury received during the course of his employment and, from a judgment in favor of the employer, appealed to the Supreme Court of Tennessee.

The petitioner alleged that he cannot walk in the dark, that he staggers when he does walk, and that he has violent pains in the back and stomach with occasional vomiting. His pupils are contracted "and reacted to light but not to accommodation.". Expert testimony was to the effect that these symptoms strongly indicate syphilis in the tertiary stage, at which stage this disease can be verified only by an examination of 3 or 4 cc. spinal fluid. The only way to obtain this specimen is by injecting a needle into the soft tissue and between the vertebrae, the total penetration being usually from 3 to 5 inches (7.62 to 12.7 cm.) A local anesthetic applied to the cutaneous surface eliminates the only possible pain. There is no bleeding and no infection results, but the patient is hospitalized for a few hours after the puncture to prevent headache. This means of procuring a specimen of spinal fluid has been employed by medical science for many years, and there is no record of resulting death, injuries or fainting. If the puncture is performed in an unskilled manner, paralysis lasting to a maximum of four hours may result. The physician proposed by the employer to perform the examination was an expert of recognized standing, and the employer proposed to pay all expenses. The petitioner refused to permit any physician to extract this fluid because he was afraid it might result in death or permanent injury, although he offered no evidence of any possibility of such results other than to say that he once heard that a distant kinsman was injured permanently in this manner.

The Tennessee workmen's compensation law provides that: "The injured employee must submit himself to the examination by the employer's physician at all reasonable times if requested to do so by the employer.... If the injured employee refuses to comply with any reasonable request for examination...his right to compensation shall be suspended and no compensation shall be due and payable while he continues such refusal."

It is generally held, said the supreme court, in construing this law that a reasonably made request by an employer for a surgical operation which is not attended with extraordinary pain or suffering or danger to life or health and which offers appreciable prospect for relief is a reasonable request which the employee must either grant or release the employer from further obligation, at least as long as he refuses. By appropriate analogy, the supreme court continued, and what seems to us to be sound principle, we hold that when it reasonably appears that the affliction of the employee may be due to some cause not arising out of and in the course of employment, then a request for such necessary examination as will determine whether the illness is due to such cause is not unreasonable, if it satisfactorily appears without contradiction that the conducting of such an examination is not attended with appreciable pain or suffering or danger to life or health. In the case at bar, said the court, it reasonably appears that plaintiff in error may be suffering from syphilis in the tertiary stage. The only way known to medical science to certainly determine whether he is suffering from such syphilis is to examine a specimen of his spinal fluid. The obtaining of that specimen requires the doing of an act to his body which is not attended with appreciable pain, suffering or danger to life or health. The examination falls within the same class as that which requires a specimen of blood. The examination requested, the supreme court concluded, is in our opinion entirely reasonable, and the refusal of the employee to submit thereto is arbitrary and without justification. Accordingly the judgment against the plaintiff was affirmed.—Trent v. American Service Co., 206 S. W. (2d) 301 (Tenn.,1947).

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL April 10, page 1001.

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: Parts I & II. Various cengers, June 21-23. Final date for filing application is May 22. Part II. Various centers, April 26-27. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2. Part III. Various centers, June. Sec., Dr. J.S. Rodman, 225 S. 15th Street, Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: Oral. New York, April 12-15, Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York 22..

American Board of Internal Medicine: Written. Oct. 18. Final date for filing application is June 1. Asst. Sec-Treas., Dr. W.A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Ophthalmology: Oral. Baltimore, May 20. Chicago, Oct. 6, Written. Various centers. Jan. 1949. Final date for filing application is July 1, 1948. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopaedic Surgery: Part II. Chicago, January 1949. Final date for filing application is August 15, Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

June 15-19. Sec., D.M. Lierle, University Hospital, Iowa City.

American Board of Pediatrics: Oral. Cleveland, April 23-25. Chicago, June 25-27. Seattle, Sept. 10-12. Atlantic City, Nov. 17-19. Written. July 30. Sec., Miss Lea Leonard, 718 Royal Union Bldg., Des Moines, Iowa.

American Board of Physical Medicine: Parts I & II. Chicago, June 19-20. Final date for filing application is April 17. Sec., Dr. R.L. Bennett, 30 N. Michigan Ave., Chicago 2.

American Board of Plastic Surgery: Examinations are given in April and November of each yesr in the home town of applicants. Sec., Dr. Robert H. Ivy, 1930 Chestnut St., Philadelphia.

American Board of Psychiatry and Neurology: Oral. All Groups, San Francisco, October. Final date for filing application is July 15. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: Written. Part I. Oct. Final date for filing application is July 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Chicago, Feb. 12-16, 1949, Sec., Dr. Harry Culver, Route #13, Sunnyside Rd., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American Journal of Clinical Pathology, Baltimore

18:1-100 (Jan.) 1948

Photo-Electric Oxyhemograph Continuous Method for Measuring Oxygen Saturation of Blood. F. W. Hartman, Vivian G. Behrmann and F. W. Chapman.—p. 1.

Hemangioma of Small Intestine with Special Reference to Intussusception: Review of Literature and Report of 3 New Cases. P. S. Hansen.—p. 14.

Elevated Serum Amylase in Alcoholics. C. A. Domzalski and B. M. Wedge.—p. 43.

Diffuse Interstitial Myocarditis in Epidemic Encephalitis. H. Ungar.—p. 48.

Case of Shigella Alkalescens Cystopyelitis and Bacteremia. L. Cardon and O. Felsenfeld.—p. 55.

Intestinal Coccidiosis: Report of 2 cases of Isospora Hominis. J D. Kirshbaum.—p. 58.

Elevated Serum Amylase in Alcoholic Addicts.—Domzalski and Wedge cite literature to the effect that alcohol may play a role in the production of pancreatitis (pancreatic necrosis). Both patients with chronic pancreatitis recently observed at their hospital were chronic alcoholic addicts. The authors made amylase determinations on the serums of 50 alcoholic persons and of 50 nonalcoholic control patients. Elevated serum amylase was found in 12 of 50 chronic alcoholic addicts following recent alcoholic intoxication but in only 1 of 50 control patients. It is suggested that elevation of serum amylase in those with alcoholism represents evidence of subclinical pancreatitis and that this condition may be a precursor of severer clinical forms of pancreatitis.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

32:1-98 (Jan.) 1948

Minimal Infectious Inoculum of Spirochaeta Pallida (Nichol's Strain), and Consideration of Its Rate of Multiplication in Vivo. H. J. Magnuson, H. Eagle and R. Fleischman.—p. 1.

Effect of Antisyphilitic Treatment on Microscopic Appearance of Syphilitic Aortitis. B. Webster and G. G. Reader.—p. 19.

*Three Years of Penicillin Alone in Neurosyphilis. J. H. Stokes, H. P. Steiger and G. D. Gammon.—p. 28.

Study of Nutritional Requirements of Reiter Strain of Treponema Pallidum. H. R. Whiteley and C. N. Frazier.—p. 43.

Effectiveness in Experimental Syphilis of Penicillin in Peanut Oil-Beeswax Given in Sixteen Daily Injections. W. L. Fleming and Mary W. Holcombe.—p. 53.

Termination of Therapeutic Malaria with Chloroquine. R. R. Kierland and W. G. McCreight.—p. 57.

Penicillin Alone in Neurosyphilis.—The report by Stokes and his co-workers is the fourth in a series presented by the University of Pennsylvania on the treatment of neurosyphilis with penicillin alone. Since the organization of the Pennsylvania group, 1,004 patients have been treated with penicillin, of whom 422 had neurosyphilis. There are no striking differences between the effect of earlier lower and later higher dosage, nor is great additional effect secured by second and third courses. The good effect of penicillin ranges through all the categories of neurosyphilis from asymptomatic neurosyphilis to paresis. A comparison of penicillin with malaria treatment in neurosyphilis (based on the literature) indicates that in paresis penicillin "catches up" on malaria by the third year, equaling it in symptomatic improvement and producing a superior effect on the spinal fluid. In taboparesis and meningovascular neurosyphilis the results with penicillin are serologically superior and clinically equal to those with malaria. In tabes dorsalis the clinical improvement is one-third better than with malaria in the second and third years, and spinal fluid normality is obtained twice as often with penicillin as with malaria in the same period. In asymptomatic neurosyphilis the results obtained with penicillin are the best in any diagnostic category. Of 65 patients with lightning pains, two thirds showed some improvement. Of 6 patients with gastric crises, 3 showed improvement. The most important complication of penicillin therapy in neurosyphilis is the Herxheimer reaction, or therapeutic shock. Serious damage may be done by full initial dosage. Ten thousand units per injection at the start is not low enough. Five hundred units per injection, ascending to full dosage in four to five days, is being tried. A course of 9.6 million units of water-soluble penicillin on a two hour round the clock schedule covering ten to twenty days, with a full dosage level per injection of 40,000 to 80,000 units, is on trial.

Annals of Surgery, Philadelphia

127:1-192 (Jan.) 1948. Partial Index

*Ligation and Division of Abdominal Aorta for Metallic Embolus from Heart: Postoperative Observations of Circulation in Extremities F. W. Cooper Jr., M. H. Harris and J. W. Kahn.—p. 1

One-Stage Resection and Anastomosis of Colon: Utilizing Furniss Clamp. J. W. Hinton and S. A. Localio.—p. 12.

Arterial Supply of Distal Colon Pertinent to Abdominoperineal Proctosigmoidectomy with Preservation of Sphincter Mechanism. H. E. Bacon and C. H. Smith.—p. 28.

Surgical Treatment of Cardiospasm. E. B. Kay.—p. 34.

Spontaneous Rupture of Malarial Spleen: Case Report and Analysis of 64 Reported Cases. F. B Hershey and J. M. Lubitz.—p. 40.

*Penetrating Wounds of Cerebral Ventricles. H. G. Schwartz and G. E. Roulhac.—p. 58.

Homogenous Fetal Cartilage Grafts to Bone: Experimental Study. S. D. Gordon and R. F. Warren.—p. 90.

Acromioclavicular Dislocation. End-Results of Screw Suspension Treatment. B. M. Bosworth.—p. 98.

Ischemic Necrosis of Anterior Crural Muscles. G. S. Phalen--p. 112.

Obstructive Lesions of Small Intestine and Sigmoid Due to Irradiation. J. G. Spackman.—p. 121.

Prolonged Intercostal Nerve Block in Upper Abdominal Operations. S. Belinkoff.—p. 136.

Technic for Blocking Carotid Sinus Nerves. J. Pick and H. Wertheim.—p. 144.

Pancreatic Calculi. E. L. Eliason and R. F. Welty.—p. 150.

Cystadenoma of Pancreas. E. E. Jemerin and N. A. Samuels.—p. 158.

Mucocele of Appendix, with Myxoglobulosis. J. G. Probstein and G. N. Lassar.—p. 171.

Carcinoma of Breast in Absence of Clinical Breast Findings. A. S. Jackson.—p. 177.

Hamartoma of Liver. R. J. Patton.—p. 180.

Case of Glomus Tumor with Primary Involvement of Bone. R. Lattes and D. C. Bull.—p. 187.

Division of Abdominal Aorta for Embolus.—The case reported by Cooper and his associates concerned a soldier aged 22, who had sustained a penetrating wound of the left arm and chest. Roentgenograms showed a foreign body in the heart. About two months later an attack of severe, sharp, stabbing precordial pain radiating to the abdomen and region of the right hip occurred. In view of the changes in pulsations in the extremities it was believed that the pain had been produced by shifting of the bullet in the aorta or by a dissecting aneurysm of the aorta. During the following nine days the pulse in the right lower extremity varied in amplitude and that in the left was absent. Then the episode of thoracic and abdominal pain recurred. About a week later the patient complained of weakness and fatigability of both legs and coldness of the right foot. Since the patient complained of recurrent attacks of pain in chest and abdomen, it was feared that the abdominal aorta was being eroded by the foreign body. Fluoroscopic examination demonstrated motion of the foreign body, and there was evidence of peripheral vasospasm in the lower extremities from irritation of the aortic wall. An operation was planned. The conditions present gave an ideal sequence leading to ligation of the aorta. The patient was young with the vascular elasticity of youth. Occlusion of the aorta was not sudden but progressive over several weeks, with variations in the completeness of obstruction to blood flow. At the time of operative intervention the vessel had become completely occluded, with an adequate collateral circulation in the legs as manifested by the prompt rise in skin surface temperatures of the toes. Postoperatively, the distal vascular bed was relieved of vasospasm produced by the foreign body. The lower extremities reacted normally to changes in environmental temperature after aortic division.

One Stage Anastomosis of Colon.—Hinton and Localio report observations on 26 consecutive colonic resections in all regions of the colon above the peritoneal reflection, which were done in one stage without a proximal colostomy or ileostomy and were anastomosed aseptically with the aid of a Furniss clamp. There was a single fatality, which occurred on the fifth day while the patient was returning from the lavatory. There were 3 abdominal complications. The postoperative hospital stay varied from seven to seventy-six and averaged nineteen days. Only nonobstructed patients were selected for this procedure. Five to seven days were allowed for preoperative preparation. Attempts were made to replenish the stores of tissue proteins. The patients received, per day, 2,000 cc. of "amigen," 500 mg. of ascorbic acid and 200 mg. of vitamin B complex parenterally. Anemia was corrected by transfusion of whole blood. The patient was placed on a high protein, low residue diet. Purging was carried out with magnesium sulfate. The patient received 12 Gm. of succinylsulfathiazole per day. At operation the colon was found collapsed and free from fecal material. A transfusion of whole blood was administered immediately postoperatively. A Levine tube was left in the stomach, but suction was not used. Fluids were permitted by mouth, excess gastric residue being siphoned off by the Levine tube. Nutrition was maintained by infusion of "amigen" and dextrose in distilled water. When the patient passed gas by rectum, the Levine tube was removed, parenteral feeding was gradually discontinued and oral feeding gradually liberalized. The bowels moved spontaneously between the third and fifth days. All patients were ambulated on the first postoperative day and daily thereafter. They were urged to use the bathroom facilities rather than the bedpan. Succinylsulfathiazole was used postoperatively. The authors consider aseptic anastomosis with the Furniss clamp a satisfactory and simple method.

Penetrating Wounds of Cerebral Ventricles.—The report by Schwartz and Roulhac is based on 50 consecutive cases of verified ventricular penetration. Thirteen of the penetrations were operated on primarily by the authors. Thirty-one wounds were inadequately débrided at forward installations and were reoperated by the authors one or more times because of infection or retained foreign bodies. Fourteen of these had retained bone chips or metallic foreign bodies lying within a ventricle. There were 5 cases of ventricular penetration which were operated on at other installations with recovery. Over-all mortality was 15 cases, of which 9 were due to infection and 6 to vital brain damage. Treatment of ventricular wounds is no different from that of other penetrating wounds of the brain, even though they are more serious. Patients suspected of having a ventricular wound should be given top priority for surgery, for the greater the delay the greater is the risk of infection or clot in the ventricles. The crux of the treatment of these wounds is adequate débridement of the entire tract, including the ventricle, under direct vision. Infected cases should be handled in the same way, with removal of debris, retained bone fragments and pus, and closure of the wound. Direct instillation of penicillin at the time of operation, plus parenteral penicillin and sulfadiazine are effective only when combined with surgical measures.

Archives of Dermatology and Syphilology, Chicago

57:1-140 (Jan.) 1948

Etiology and Rehabilitation. R. M. B. MacKenna.—p. 1.
Graduate Education in Dermatology. P. A. O'Leary.—p. 11.
Survey of Pathologic Studies of Cutaneous Diseases During World War II. A. C. Allen.—p. 19.
Liquid Oxygen in Dermatologic Practice. R. L. Kile and A. L. Welsh.—p. 57.
Spindle Cell Epidermoid Epithelioma Simulating Sarcoma in Chronic Radiodermatitis. C. F. Sims and N. Kirsch.—p. 63.
Chemistry of Palmar Sweat. V. Ammonia Nitrogen. W. C. Lobitz Jr. and H. L. Mason.—p. 69.
Technic and Problems of Roentgen Ray Epilation. F. C. Combes and H. T. Behrman.—p. 74.
American Cutaneous Leishmaniasis: Report of 12 Cases from Canal Zone. J. S. Snow, E. M. Satulsky and B. H. Kean—p. 90.
Sebaceous Adenoma: Review of Literature and Report of Case. W. F. Lever.—p. 102.
Lymphogranuloma Venereum: Observations on 388 Patients at Bellevue Hospital. M. J. Costello and C. S. D'Avanzo.—p. 112.

Lymphogranuloma Venereum.—Costello and D'Avanzo report on 388 patients admitted to the dermatologic wards of Bellevue Hospital with a diagnosis of lymphogranuloma venereum in the ten year period 1936 to 1945, inclusive. Of the patients 317 were men. During the last two years there has been a decided increase in the female patients, in whom the disease was more chronic and longer duration. Nearly three fourths of the patients were Negroes, and 3 of the white men admitted sexual relations with Negro women. The authors believe that this fact might be elicited more frequently if this information were definitely sought. The average duration of the disease in patients with inguinal involvement of the lymphatic nodes previous to hospitalization was thirty and seven-tenths days, while the average duration of the disease in patients with rectal changes previous to admission to the hospital was thirty-two and two-tenths months The genitals and the inguinal lymph nodes were primarily involved in 344. In 40 the anorectal region was involved. There were also 2 cases with involvement of the perianal region, 1 of the mandibular region and 1 of the scrotal area. An intradermal test with Frei antigen was performed in 380 of the 388 patients. Of these, 365, or 95.5 per cent, showed a positive reaction. There were 15 patients who had inguinal adenopathy for less than one week and in whom the reaction in the initial Frei test was negative. Reactions in repeated Frei tests at subsequent intervals became positive. The Frei test should be repeated several times in suspected cases of inguinal adenopathy. Before the use of sulfonamide drugs for lymphogranuloma venereum, routine treatment consisted of aspiration of the buboes and the administration of antimony potassium tartrate or stibophen. Since 1938 the sulfonamide drugs have been used, and these together with rest in bed now constitute the best treatment. Surgical intervention in the cases of early disease should be reduced to a minimum. In all cases of "inguinal abscess" and perianal infection and abscess there should be an intradermal test with Frei antigen before operative intervention is performed.

Archives of Internal Medicine, Chicago

80:697-856 (Dec.) 1947

*Fifteen Years' Experience with Free Feeding of Patients with Bleeding Peptic Ulcer: Fatal Cases. E. Meulengracht.—p. 697.
Epidemiologic Study of 757 Cases of Rheumatic Fever. R. W. Quinn.—p. 709.
Low Serum Potassium Level During Recovery from Diabetic Coma, with Special Reference to Its Cardiovascular Manifestations. M. Frenkel, J. Groen and A. F. Willebrands.—p. 728.
*Metabolic Studies in Diabetic Acidosis: I. Effect of Early Administration of Dextrose. M. Franks, R. F. Berris, N. O. Kaplan and G. B. Myers.—p. 739.
Ventricular Tachycardia and Bilateral Amaurosis Produced by Quinine Poisoning. A. H. Diamondstone, B. L. Braveman and L. A. Baker.—p. 763.
*Rheumatoid Arthritis in Children: Clinical Study. N. S. Pickard.—p. 771.
*Acute Panarteritis in Allergic Persons. J. B. Miale, K. H. Doege and M. Piehl.—p. 791.
Syphilis: Review of Recent Literature. F. W. Reynolds and J. E. Moore.—p. 799.

Bleeding Peptic Ulcer.—Meulengracht treated 1,031 patients with bleeding peptic ulcer by free feeding as a routine measure during the period June 1931 to June 1946. Death occurred in 26 patients, 17 men and 9 women, during their stay in the hospital. All except 1 of these patients were over 40 years of age and half were over 60. Many had large ulcers penetrating into the pancreas or the liver, and many had complicating diseases. If all the fatal cases are included, the gross mortality is 2.5 per cent. If cases are excluded in which death was entirely or principally due to causes other than bleeding as well as those in which the patients died twenty-four hours after admission to the hospital and therefore before they had received the treatment, the net mortality is 1.5 per cent. The risk of hemorrhage in the free feeding program is greatest in the higher age groups, presumably because of the poor condition of the vessels and the various complicating diseases in those age groups. In all the fatal cases the bleeding manifested itself as hematemesis. The latter indicates a worse prognosis than melena. A more ample use of blood transfusions is recommended in cases which threaten to terminate fatally.

Diabetic Acidosis.—Franks and his co-workers limited the intake of 28 patients with severe diabetic acidosis or coma to water, sodium chloride, dextrose and insulin supplemented in some cases by plasma, blood or alkali. Determinations of the blood sugar content, carbon dioxide combining power, chloride and inorganic phosphorus contents and hematocrit readings were made at approximately four hour intervals for twenty-four hours. Seven patients received no supplementary dextrose until the blood sugar level had fallen within the normal range. Twenty-one patients received dextrose intravenously or by mouth from the onset of therapy; 10 patients were given dextrose at rates of 6 to 20 Gm. per hour during the first period, and dextrose was given at rates exceeding 20 Gm. per hour to 11 patients. The severity of the condition on the patient's admission to the hospital was taken as a basis for the evaluation of therapeutic results. The patients of the saline group had an average severity index of 24 per cent and an actual fatality rate of 14 per cent, while the 11 patients receiving large amounts of dextrose early had a severity index of 37 per cent and an actual fatality rate of 36 per cent. The administration of dextrose in the early hours resulted in prolonged hyperglycemia, pronounced glycosuria and polyuria. The maintenance of hyperglycemia did not accelerate the disappearance of acetone from the urine or the rise in plasma carbondioxide combining power. The early administration of dextrose appeared to have an unfavorable influence on the outcome in the group as a whole. For further evidence the clinical analysis was extended to a total of 71 patients with diabetic coma. Sixteen of these received sodium phosphate and will be considered in another paper. For 22 of the remaining, from whom dextrose was withheld for at least the first four hours, the mean severity index was 40 per cent and the actual fatality rate was 36 per cent. The other 33 patients received dextrose during the first four hours and had a mean severity index of 37 per cent but a fatality rate of 52 per cent. These results indicate that dextrose should not be administered in diabetic acidosis until the blood sugar level has fallen within or near normal range.

Rheumatoid Arthritis in Children.—Pickard reports the end results in 35 cases of rheumatoid arthritis in children who had been followed for thre to more than five years. Etiologic factors in these cases appear to have been infection, trauma and allergy. The essential feature of the disease is an altered specific reaction of the patient to these activating agents. There is essential agreement with the conclusion of Colver that the disease is self limited. There is essential disagreement with the same author in regard to the "second attack" or recrudescence after quiescence. After the involvement of various joints by the rheumatoid process, a wide difference in the outcome may be anticipated according to the joint involved, with poorest results in the elbows, the carpal joints and the wrists and relatively good in the ankles and the knees. Visceral lesions accompany the severe forms of the disease; "rheumatism-like" lesions in the heart and amyloid degeneration in the liver and spleen are of greatest importance. A persisting monarticular form of rheumatoid arthritis in children may be observed at times and is difficult to distinguish in some cases from tuberculous synovitis. Rheumatoid arthritis and rheumatic fever may closely resemble one another. There is a reasonably good basis for the removal of focal infection during the active phase of the disease. Surgical attack on joints during the active phase of the disease does not seem advisable. The incidence of recovery is high if all cases are taken into consideration; 3 patients died, 11 were left with residual crippling of various degree and 14 recovered without residual crippling. In 7 patients the disease was still active at the time of last observation.

Panarteritis in Allergic Persons.—Miale, Doege and Piehl report the occurrence of acute necrotizing arteritis in 2 men, aged 40 and 67, respectively, who both had definite atopy. The first patient had gangrene of the ileum with acute allergic dermatitis on the basis of an acute arteritis. The evidence of acute renal damage coincident with the abdominal condition, plus the residual renal damage demonstrated by a phenolsulfonphthalein test of renal function suggested that there was simultaneous arterial involvement in the kidneys and possibly in other organs. The condition was diagnosed early in the course of the illness, all medication stopped and a good recovery made. The second patient died, and final diagnosis on necropsy was visceral angiitis (panarteritis), glomerulonephritis on the basis of visceral angiitis, pleural adhesions, hydrothorax, ascites, fibrous obliterated pericarditis and passive congestion of the lungs, spleen and liver. The vascular necrosis was severest in the kidneys and liver. Previous to the fatal disease the patient had been seen many times in the dermatologic department because of severe asthma and allergic dermatitis. In these 2 cases there is enough evidence to show that the relationship between hypersensitivity and acute arterial disease is more than accidental. In case 1 all medication was stopped as soon as the diagnosis was made in the hope that the antigen might be excluded by such means. This may be a lifesaving measure when the antigen is exogenous. The authors feel confident that more and more cases will be recognized before autopsy is performed. New developments in the field of the antiallergic drugs may lead to a more active method of therapy in the near future.

Archives of Neurology and Psychiatry, Chicago

58:653-788 (Dec.) 1947

Central Nervous System in Pneumonia (Nonsuppurative Pneumonic Encephalitis): III. Experimental Study. H. H. Noran, A. B. Baker and W. P. Larson.—p. 653.

Ballism and Subthalamic Nucleus (Nucleus Hypothalamicus; Corpus Luysi): Review of Literature and Study of 30 Cases. J. R. Whittier. —p. 672.

Electroencephalographic Studies on Induced and Excised Epileptogenic Foci in Monkeys. B. L. Pacella, Lenore M. Kopeloff and N. Kopeloff. —p. 693.

Investigations on Narcodiagnosis. F. A. Freyhan.—p. 704.

Postoperative Period of Survival of Patients with Oligodendroglioma of Brain: Report of 25 Cases. H. A. Shenkin, F. C. Grant and J. H. Drew.—p. 710.

*Significance of Changes in Electrocardiogram After Electrically Induced Convulsions in Man. M. D. Altschule, W. M. Sulzbach and K. J. Tillotson.—p. 716.

Spatial Organization of Visual Perception Following Injury to Brain. M. B. Bender and H. L. Teuber.—p. 721.

*Poliomyelitis: Study of Epidemic of 40 cases in Key West, Fla. May-August 1946. W. D. Davis and C. M. Silverstein.—p. 740.

Electrocardiographic Changes in Electric Convulsions.—Altschule and his associates made electrocardiographic studies on 10 patients, who were treated with electrically induced convulsions. Five patients were studied onceor twice and the other 5 were studied four to seven times each. Observations made on these patients corroborate the previously recorded shifting of the site of origin of the heart beat, as evidenced by pronounced sinus arrhythmia, periods of sinus bradycardia, frequent auricular and nodal premature beats and, in 1 instance, auricular tachycardia. This type of disturbance in cardiac rhythm is a consequence of vagal hyperactivity. The increase in vagal activity usually does not induce sufficient cardiac inhibitation to cause more than transitory bradycardia; the systemic circulation is not slowed; the occurrence of vagal arrhythmia goes with other evidences of antonomic stimulation exhibited by patients during and after convulsive seizures.

Poliomyelitis in Key West.—Davis and Silverstein report observations they made in the course of an epidemic of poliomyelitis which began on the island of Key West in May 1946. The population of Key West at the time of the epidemic was about 14,000 civilians and about 3,500 naval personnel and their families. There were 40 verified cases of poliomyelitis and 190 cases of suspected and probable abortive poliomyelitis. There were 7 pregnant women with poliomyelitis; 6 of them had the paralytic form. Nearly three fourths of the patients in Navy families were adults (19 to 33 years of age), whereas only 10.5 per cent of the civilian patients were adults. There were three instances in which 2 verified cases occurred in the same family (6 patients). Thirteen of the remaining 34 patients gave a history of a febrile illness resembling poliomyelitis in one or more of the family at the same time. Eight patients had a normal temperature on admission. Since fever is usually a cardinal sign of infection, a patient suspected of having poliomyelitis who has no fever, but mild symptoms, should be asked routinely about recent fever or should be watched for the subsequent development of fever. A history of direct contact with persons known to have poliomyelitis was obtained for 18 (almost one-half) of the patients. Polluted beach water and flies were also possibly incriminated in the transmission of the virus. The treatment was that followed by the Georgia Warm Springs Foundation with regard to general nursing care, use of hot packs, baths and passive motion, reeducation of muscles and prolonged observation and treatment after the acute stage of the disease.

Arizona Medicine, Phoenix
5:1-124 (Jan.) 1948

Virus Pneumonia. W. B. Yegge.—p. 31.
Clinical Aspects of Bronchial Asthma, Diagnosis and Treatment. F. B. Schutzbank.—p. 38.
Hypertrophic Pyloric Stenosis and Vomiting in Infancy. D. E. Nelson. —p. 44.
Medical Observations on Management of Shock. C. A. L. Stephens Jr. —p. 50.
Torsion of Spermatic Cord in Left Inguinal Canal in Cryptorchid. C. E. Yount, E. A. Born and C. E. Yount Jr.—p. 54.
Hydatidiform Mole Followed by Chorionepithelioma. C. B. Warrenburg. —p. 57.
Malicious Poisoning of Water Supplies and Its Detection. R. A. Greene and E. L. Breazeale.—p. 60.
Forcing Socialized Medicine on America by Use of Federal Employees and Government Money. F. A. Harness.—p. 64.
Changing Trends in Medical Research and Practice. E. F. Boyd.—p. 71.

Canadian Medical Association Journal, Montreal
58:1-114 (Jan.) 1948

Treatment of Acute Perforated Peptic Ulcer. D. L. C. Bingham.—p. 1.
Refrigeration Anesthesia. Ethel A. Noble.—p. 5.
Surgical Treatment of Congenital Heart Disease: (Tetralogy of Fallot). G. Murray.—p. 10.
Examination of the Hard of Hearing. E. E. Scharfe, G. E. Hodge and T. Cadman.—p. 12.
Control of T.N.T. Sickness in Industry. W. E. Park.—p. 19.
Treatment of Certain Psychoneuroses by Modified Insulin Therapy. M. Carnat, F. J. Edwards and Elizabeth I. Fletcher.—p. 22.
*Bronchogenic Carcinoma: (Twelve Year Review and Operative Results). E. D. Gagnon.—p. 25.
Carcinoma of Urethra in Female. M. Seng and M. Siminovitch.—p. 29.
*Cervical Herniation of Lung. J. F. Meakins, C. J. Wyatt and M. Aronovitch.—p. 33.
Management of Late Toxemias of Pregnancy. J. L. MacArthur.—p. 35.
Treatment of Peptic Ulcer. A. H. Gordon.—p. 38.
Incoordinate Uterine Action in Labor. T. N. A. Jeffcoate.—p. 42.
Anesthesia for Intracranial Operations. A. R. Hunter.—p. 48.
Accidental Hemorrhage. G. F. Gibberd.—p. 53.
Dupuytren's Contracture. R. G. Langston and E. J. Badre.—p. 57.
Field Surgical Unit. J. A. Hillsman.—p. 61.
Subdural Hematoma in Infancy. T. Statten.—p. 63.

Bronchogenic Carcinoma.—Gagnon says that from 1934 to 1945, inclusive, 508 patients with bronchogenic carcinoma were admitted to the Toronto General Hospital. He excludes from consideration 284 patients in whom the diagnosis appeared obvious from clinical examination or after biopsy from secondarily involved glands or skin. In the 224 patients forming the basis of this review, the diagnosis was determined by microscopic examination of tumor tissue obtained either by bronchoscopy, thoracotomy biopsy or necropsy. The increase is apparent and can probably be explained by increasing awareness on the part of physicians, which leads to a more frequent recognition. The disease is much commoner in the male, there being only 25 females in this series. The oldest patient was 84 and the youngest, 15. The majority of patients were between the fourth and sixth decades of life. Bronchoscopy permitted a positive diagnosis in 69.1 per cent of those examined by this means. The disease is somewhat more frequent on the right side than on the left side. Eighty-six chests were opened and resection was completed in 49 cases, 5 of which were lobectomies. Operative mortality for lobectomy is nil; the maximum survival was nine months. Operative mortality following pneumonectomy in the series was 36 per cent, though for the last year of the review it was only 25 per cent. In 1946 the mortality was further reduced to 6.6 per cent. One fourth of all patients on whom pneumonectomies were performed are alive today and apparently free of disease, their survival ranging from seven months to eight and one half years.

Cervical Herniation of Lung.—Meakins and associates state that herniation of the lung is rare, only 200 cases having been recorded in medical literature. The authors differentiate between cervical, thoracic and diaphragmatic hernia. They quote Maurer and Blades as saying that "cervical hernias usually occur through the superior aperture of the thorax in the interval between the sternocleidomastoid and scalenus anticus muscles following some tear or deficiency in Sibson's fascia which normally limits the cervical excision of the dome of the pleura." The authors report 2 cases of cervical hernias of the right lung. First, a man aged 58 had a multiplicity of lesions, including carcinoma of stomach and duodenum. Necropsy confirmed these lesions as well as herniation of the apex of the right lung. The herniation could have been due to a congenital structural defect in the apical and cervical area. In view of the clearcut history of injury to the affected area with the immediate appearance of the bulge one can assume that in this case trauma was probably the originating factor. Injury could have been superimposed on congenital weakness. The second case concerned a man aged 53. In this case there was strong evidence that trauma was the etiologic factor.

Georgia Medical Association Journal, Atlanta
37:1-38 (Jan.) 1948

Sickle Cell Anemia and Pregnancy: Report of Case. J. C. Neal, V. P. Sydenstricker and R. Torpin.—p. 1.
Observations on Prison Psychoses. M. M. Estes and J. S. New.—p. 2.
Narcohypnosis in Medical Practice. H. R. Lipton and J. K. Fancher. —p. 6.
Chronic Alcoholism. J. D. Campbell.—p. 12.
Dynamics of Pathologic Depression. L. F. Woolley.—p. 16.
Subacute Bacterial Endocarditis: Report of Patient Treated with Massive Doses of Penicillin. W. J. Nelson, W. J. Gower and E. A. Allen. —p. 23.
*Use of Radium in Nasopharynx for Deafness and Its Clinical Effects: Report of Cases. J. L. Jennings.—p. 24.

Use of Radium in Nasopharynx.—Jennings used radium in the nasopharynx by means of a nasal applicator which was designed by Drs. Crowe and Burnam. A capsule of "monel" metal containing 50 mg. of radium sulfate measures 15 mm. in length, has an inside diameter of 1.7 mm. and a wall 0.3 mm. thick. This allows the beta rays to penetrate 3 mm. of tissue. Indications for the use of radium in the nasopharynx are: blockage of the eustachian tube by lymphoid tissue; the presence of lymphoid tissue in the nasopharynx in conjunction with nasal allergy, postnasal discharge, frequent colds and aero-otitis, and also a small area of lymphoid tissue in the nasopharynx which harbors infection and sensitizes the patient. The radium applicator is allowed to stay in place for twelve minutes and then is transferred to the opposite side of the nose for the same period of time. The treatment is carried out at two to three weeks' intervals for three to four applications of radium. At times it is wise to remove the large mass of adenoids surgically before radium therapy. This eradicates the small remnants of adenoid tissue possibly not removed at the surgical procedure. With this method it is possible to eliminate in six months the lymphoid tissue which may require ten to twelve years for removal by natural atrophy. The author cites encouraging results obtained with radium in asthma and allergic conditions and in earache without discharge, but he admits that not all patients are relieved or improved.

Indiana State Medical Assn. Journal, Indianapolis
41:1-184 (Jan.) 1948

Effect of Taxes on Your Estate Plans. B. B. Emswiller and A. Stump —p. 21.
Indiana's Licensed Nursing Homes. O. F. Walls.—p. 25.
Indiana Vocational Rehabilitation: Its Organization, Scope and Services F. M. Hall.—p. 32.
Home Town Medical Care Program of Veterans Administration. C. F Thompson.—p. 35.
Federal Income Tax and Medical Profession. F. S. Wilcox.—p. 36.
Trends in Medicine. R. L. Sensenich.—p. 77.
Planned Parenthood—Road to National Health and World Peace. C. O McCormick.—p. 81.

Journal of Experimental Medicine, New York
87:1-86 (Jan.) 1948

Preparation from Human Red Cells of Substance Inhibiting Virus Hemagglutination. P. M. deBurgh, P.-C. Yu, C. Howe and M. Bovarnick.—p. 1.
Studies on Endemic Pneumonia of Albino Rat: III. Carriage of Virus-Like Agent by Young Rats and in Relation to Susceptibility. J. B. Nelson.—p. 11.

*Studies of Distribution of Poliomyelitis Virus: V. Virus in Familial Associates of Cases. G. C. Brown, T. Francis Jr. and J. Ainslie.—p. 21.

Studies on Plant Hypertensinase. F. Gollan, Evelyn Richardson and H. Goldblatt.—p. 29.

Studies in Relation of Hemolytic Streptococcus to Rheumatic Fever. T. N. Harris.—p. 41.

Heparinemia(?): An Anticoagulant in Blood of Dogs with Hemorrhagic Tendency After Total Body Exposure to Roentgen Rays. J. G. Allen, Margaret Sanderson, Mary Milham and others.—p. 71.

Poliomyelitis Virus in Familial Associates.—Brown and his collaborators in order to ascertain the role of the familial associate as a healthy carrier or a possible source of infection of poliomyelitis made studies on four families. Two criteria were required: first, that the family include at least two children other than the one with poliomyelitis; second, that collection of specimens could be started within three days of onset of illness in a member of the family. The occurrence and duration of the carrier state in familial associates of those with recognized cases of poliomyelitis was studied by the examination for virus of stool specimens collected from the members of the four families at regular intervals for a period of over two months. The results indicate that virus may persist in their stools continuously for four to five weeks; virus may be encountered intermittently in the stools; in some instances virus may be present for brief periods only; children are more likely to maintain virus than are adults in the same family; infection of a family takes place rapidly, suggesting simultaneous infection from a common source.

Journal Industrial Hygiene & Toxicology, Baltimore

30:1-70 (Jan.) 1948

Acute Toxicity of Ethylene Imine to Small Animals. C. P. Carpenter, H. F. Smyth Jr. and C. B. Shaffer.—p. 2.

Comparison of Acute Toxicities of Ethylene Imine and Ammonia to Mice. S. D. Silver and F. P. McGrath.—p. 7.

*Toxicologic Studies on Laboratory Animals of Certain Alkyldinitrophenols Used in Agriculture. H. C. Spencer, V. K. Rowe, E. M. Adams and D. D. Irish.—p. 10.

Antimony Trisulfide. F. M. R. Bulmer and J. H. Johnston.—p. 26.

Air Contamination During Machining of Beryllium Stainless Steel. A. C. Titus.—p. 29.

Proteinuria and Kidney Injury Among Workmen Exposed to Cadmium and Nickel Dust: Preliminary Report. L. Friberg.—p. 32.

Two Outbreaks of Carbon Disulfide Poisoning in Rayon Staple Fiber Plants in Poland. E. A. Paluch.—p. 37.

Study of Health Hazards of Tobacco Stemming and Redrying Industry. W. E. McCormick, Maxine Smith and S. P. Marsh.—p.43.

Tellurium: III. Toxicity of Ingested Tellurium Dioxide for Rats. R. H. De Meig and W. W. Jetter.—p. 53.

*Determination of Lead in Freshly Voided Urine: Rapid Screening Test. J. Cholak, D. M. Hubbard and R. E. Burkey.—p. 59.

Further Experience with Range Finding Test in Industrial Toxicology Laboratory. H. F. Smyth Jr. and C. P. Carpenter.—p. 63.

Toxicologic Studies on Alkyldinitrophenols Used in Agriculture.—Spencer and his co-workers say that the dinitrophenols have been used for decades for the control of mites, aphids, scale insects and other pests. During the last ten years 2-cyclohexyl-4,6-dinitrophenol and its compound with dicyclohexylamine have gained wide acceptance as insecticides in greenhouse, field and orchard. Experimental work was undertaken in order to obtain toxicologic information on the hazard associated with the use of the dinitrophenols. Experiments were made on rabbits and guinea pigs. Contact with the dinitrophenols incident to their use in agriculture does not present a significant problem from cutaneous irritation. The infrequent person who is hypersensitive to this class of compounds should not work with these materials. The systemic toxicity of the dinitrophenols is sufficiently high that any one of them may present a health hazard from the inhalation of dusts or sprays. The inhalation of either liquid or dry mix concentrates (greater than 5 per cent) of any of these compounds should be avoided. In some cases respirators may be necessary. Low concentrations of the dinitrophenols are commonly found in preparations ready for field use, but reasonable care should be taken to avoid breathing excessive amounts of the dust or spray. The oral intake of the dinitrophenols should not present a problem. Care should be taken to wash well before eating. No significant health problems have arisen from residues remaining on fruits and vegetables. There is usually ample time for the removal of the residue before harvest by volatilization and by the leaching action of rain.

Determination of Lead in Urine.—Cholak and his associates point out that there has long been a need for a rapid analytic method which can be relied on to separate persons who have been subjected to hazardous lead exposure from those whose exposure to lead has been negligible or within safe limits. Such a screening test, as applied to freshly voided samples of urine, is described in detail. The method has been designed to require a minimum of equipment and manipulation and, once standardized, can easily be carried out by a well trained laboratory technician. The method is offered with the warning that although it is capable of the accurate determination of lead if followed faithfully, it does not distinguish between lead and bismuth, and therefore any results indicative of abnormal absorption of lead must be checked by the use of a more specific and precise method.

Journal of Nervous and Mental Disease, New York

106:513-618 (Nov.) 1947

*Electroencephalographic Changes Induced by Water Intoxication. R. Cohn, L. C. Kolb and D. W. Mulder.—p. 513.

Some Electro-Encephalographic Findings in Subcortical and Hypothalamic Lesions. M. W. Laufer.—p. 527.

Blocking of Chemical Decerebration by Pontile Pathology: Case Report. Barbara S. Lipton.—p. 537.

Study of Carbonic Anhydrase in Thirty-Seven Brains with Reference to Symmetry of Distribution. Winifred Ashby and D. Weickhardt.—p. 540.

Objective (Behavioristic) Criteria of Recovery from Neuropsychiatric Disorders. K. R. Eissler.—p. 550.

Observations on Emotional Currents in Interview Group Therapy with Adolescent Girls. H. Spotnitz.—p. 565.

Diary of War Neurosis. R. L. Stern.—p. 583.

Mental Hospitals: Today and Tomorrow. P. W. Thomas.—p. 587.

Electroencephalographic Changes in Water Intoxication.—Cohn and his co-workers employed the pitressin hydration test in 23 young white men, all in naval service, who were admitted to the hospital for study following one or more attacks of syncope, transitory impairment of consciousness or convulsion. The illness presented by the group was unusual, first, in the relative infrequency of the attacks and second, in the short duration of the disease. The authors observed that water intoxication gave rise to low frequency activity in the electroencephalogram in nearly all the subjects. The bioelectric changes were similar to those produced by insulin-induced hypoglycemia and oxygen poisoning. The authors conclude that the pitressin water test is not a specific test for epilepsy. They think that water intoxication, in common with hypoglycemia and oxygen metabolism collapse, is probably a phenomenon of intraneuronal dysfunction. In certain epileptic persons a positive water balance apparently disturbs already poorly functioning neurones, as determined by the electroencephalographic low frequency activity, and thereby acts as the detonating mechanism for the convulsive discharge. The absence of abnormal cerebral electric activity in water intoxication does not indicate that the observed patient does not have clinical epilepsy. In the types of patients in the study, the pitressin hydration test is of limited value for the diagnosis of epilepsy.

Journal of Pharmacology & Exper. Therap., Baltimore

92:1-102 (Jan.) 1948. Partial Index

Action of Pyridine and Some Derivatives of Pyridine-3-Carboxylic Acid on Neuromuscular Transmission. F. Valenzuela and F. Huidobro.—p. 1.

Determination of Therapeutic, Irregularity, and Lethal Doses of Cardiac Glycosides in Heart-Lung Preparation of Dog. A. Farah and G. Maresh.—p. 32.

Absorption, Distribution and Excretion of Streptomycin E. K. Marshall Jr.—p. 43.

Metabolic Fate of Chloral Hydrate. T. C. Butler.—p. 49.

Influence of Atropine and Scopolamine on Central Effects of DFP (Di-Isopropyl Florophosphate W. C. Wescoe, R. E. Green, B. P. McNamara and S. Krop.—p. 63.

Influence of Sulfhydryl Compounds on Diuresis and Renal and Cardiac Circulatory Changes Caused by Mersalyl. A. Farah and G. Maresh.—p. 73.

Effects of Single Doses of 6-Dimethylamino-4-4-Diphenyl-3-Heptanone (Amidone, Methadon, or "10820") on Human Subjects. H. Isbell, Anna J. Eisenman, A. Wikler and K. Frank.—p. 83.

Biological Assay of Histamine and Diphenhydramine Hydrochloride (Benadryl Hydrochloride). G. Chen, C. R Ensor and Isabel G. Clarke.—p. 90.

Kansas Medical Society Journal, Topeka

48:537-580 (Dec.) 1947

Inquiry Into Causes for Bleeding From Uterine Myomata. L. D. Odell and J. Scott.—p. 537.

Evaluation of Cardiac Patients for Surgery. M. H. Delp.—p. 540.

Acne Vulgaris. R. L. Sutton Jr.—p. 545.

Observations of Traumatic Rupture of Spleen: Report of Case. J. E. Lamy and F. A. Ricke.—p. 550.

Medical Annals of District of Columbia, Washington

16:651-726 (Dec.) 1947

Medical Statesmanship. E. L. Bortz.—p. 651.
Varicose Veins and Varicose State. J.J.Weinstein and P. B. Hudson.—p. 657.
Clinical Examination in Recognition of Heart Disease. B. Manchester.—p. 667.
General Review of Allergy. G. T. Brown.—p. 675.

17:1-70 (Jan.) 1948

Experimental Trends in Antibiotics. P. A. Bunn.—p. 1.
Penicillin. Review of Basic Principles and Their Clinical Application. H. L. Hirsh.—p. 7.
*Treatment of Bacterial Endocarditis with Penicillin and Streptomycin W. W. Zeller, H. L. Hirsh, H. F. Dowling and others.—p. 21.
*Hemorrhagic Gangrenous Exfoliative Dermatitis Following Penicillin in Oil and Beeswax; Combined Immediate and Delayed Reactions: Report of Case. J. L. Derzavis and J. Beinstein.—p. 32.
Temporal Arteritis. Critical Review of Proven Cases with Report of Additional Case with Pernicious Anemia. M. Protas and A. G. Saidman.—p. 34.

Penicillin and Streptomycin in Bacterial Endocarditis.—Zeller and his associates treated 42 patients with bacterial endocarditis by means of penicillin and 1 patient with penicillin and streptomycin. Sixteen patients died, 14 from active infection and 2 of heart failure after the infection was apparently cured. Problems concerning the use of penicillin in the treatment of bacterial endocarditis are outlined and discussed. A plan for management of patients with bacterial endocarditis is recommended.

Exfoliative Dermatitis Following Penicillin.—Derzavis and Beinstein report the case of a man, aged 56, who received one intramuscular injection of 300,000 units of penicillin in an oil and beeswax vehicle for treatment of traumatic cellulitis of the right ring finger and regional epitrochlear lymphadenitis. Within six hours he experienced severe generalized itching. On the following day there was an acute erythematous macular and maculopapular eruption over all the extremities and genitalia. During the next four days the eruption progressed through a vesicular stage in these regions followed by the appearance of hemorrhagic vesicles on the legs and thighs and a few scattered hemorrhagic vesicles on the trunk, accompanied by bullous lesions in the intertriginous areas. The peak of the dermatosis was apparently reached between the fifteenth and twentieth days, and gradual subsidence followed during the next fortnight with healing of all lesions and exfoliation of almost the entire skin in extensive keratinous sheaths. There was no reaction when the patient partook freely of peanuts and honey. The mechanism of allergic reaction to penicillin is interesting in this case because of the moderate dermatophytosis present and the severe local reaction in those regions about the toewebs. The authors cite experimental studies by other investigators that suggest the possibility of sensitization to penicillin on the basis of cross sensitization to superficial fungous diseases. Physicians should realize that penicillin is not a reactionless drug.

New England Journal of Medicine, Boston

238:1-36 (Jan. 1) 1948

*Anticoagulant Treatment of Postoperative Venous Thrombosis and Pulmonary Embolism. J. A. Evans and J. F. Dee.—p. 1.
Thiouracil and Allied Drugs in Hyperthyroidism. E. C. Bartels.—p. 6.
Neurologic Disturbances with Folic Acid Therapy. P. F. Wagley.—p. 11.
Lipemia Retinalis: Report of Case. S. Stearns, E. Friedman, M. Lugitch and S. H. Hoffman.—p. 16.
Toxemias of Pregnancy. B. Tenney Jr.—p. 18.
Hepatoma, with Extension Into Portal and Hepatic Veins. Inactive Portal Cirrhosis of Liver.—p. 25.
Ewing Sarcoma of Sacrum.—p. 28.

Anticoagulants in Venous Thrombosis.—According to Evans and Dee "dicumarol" has provided since April 1941 the predominant method of therapy at the Lahey Clinic. In the majority of cases a combination of heparin and "dicumarol" has been used. During the first four years heparin was given by continuous intravenous drip to cover the latent period of "dicumarol." For the past two years deep injections of heparin in Pitkin menstruum have been given subcutaneously. Evans and Dee review results obtained in 184 cases of postoperative venous thrombosis with or without pulmonary embolism during the five years 1942 to 1946. Sixty-three patients received heparin intravenously. Fifty-five received heparin in Pitkin menstruum. One to five injections of heparin in Pitkin menstruum were necessary according to the patient's refractoriness to "dicumarol." To the 184 cases must be added 54 in which patients with postoperative pulmonary embolism died untreated, because such deaths either occurred suddenly or were unrecognized as thrombosis with embolism. This makes a total of 238 cases of thromboembolic disease, or an incidence of 0.42 per cent among approximately 56,000 major surgical operations. There were 6 fatal cases in the series of 184. Two were postoperative chemical deaths. One patient early in the series died of hemorrhage from "dicumarol" poisoning. This leaves 3 fatal cases of thromboembolic disease. These 3 deaths occurred in the particularly dangerous groups of cases in which the patients had already suffered one pulmonary embolism. On analysis, none of these 3 cases presented a clearcut argument against the efficacy of anticoagulation therapy. Since 85 per cent of patients with fatal pulmonary emboli give warning signs, usually a low temperature and tachycardia or a history of previous thromboembolic disease, or have varicose veins, a plea is made for better prophylaxis. This can be accomplished by leg exercises, bandaging of limbs, early ambulation prophylactic ligation in debilitated patients over 60 years of age or the administration of "dicumarol" on the fourth day after operation.

238:37-72 (Jan. 8) 1948

Certain Public-Health Aspects of Infectious Diseases. T. M. Rivers.—p. 37.
"Fever of Unknown Origin" Due to Lymphogranuloma Venereum: Report of Case with Diagnosis by Use of Quantitative Complement-Fixation Tests. N. M. Luger.—p. 44.
Disabled Veterans of World War II: Analysis of 600 Cases Examined at Harvard University. A. Thorndike.—p. 48.
*Toxic Effects of Gases and Vapors: Mechanism of Poisoning by Volatile Solvents. M. Clinton Jr.—p. 51.
Radiation Therapy. S. A. Robins, B. E. LeVine and G. White.—p. 55.
Carcinoma of Breast; Metastases to Mediastinal Lymph Nodes Involving Esophagus and Right Main Bronchus.—p. 60.
Epidermoid Carcinoma of Bronchus of Right Lower Lobe. Bronchiectasis.—p. 63.

Toxic Effects of Gases and Vapors.—Clinton thinks that many illnesses resulting from the inhalation of toxic gases or vapors are ascribed to other causes, because the syndrome produced may resemble in every particular one of several common organic diseases. The patient is frequently not aware that the air he is breathing contains a noxious agent and fails to associate the breathing of some odd smelling but essentially nonirritating air with the occurrence of illness ten days or two weeks later. The author presents some of the basic principles involved in the absorption of toxic gases and vapors with a diagram of representative respiratory patterns of a person exposed to a thousand parts of ammonia per million parts of air and of a person exposed to ten thousands parts of trichlorethylene per million parts of air. Carbon disulfide and benzene no longer menace the health of workers as they did ten or twenty years ago, since the hazards are recognized and controlled. However, new solvents and volatile chemicals, some of which may be capable of causing serious illness, are constantly being introduced in industry and to a lesser extent turned loose on an unsuspecting public. Disease of the liver or impairment of blood cell formation has long been associated with exposures to solvent vapors. The possibility of a toxic exposure is therefore usually thought of and investigated in patients with unexplained jaundice or with anemia or leukopenia. Many exposures to toxic vapors may fail to result in either of these reactions but may cause a nephritis that clinically is readily mistaken for ordinary glomerular nephritis. Many physicians are not aware of the frequency of toxic nephritis due to exposures to toxic chemicals and may fail to inquire about such exposure in a patient with renal disease, although they would seek to determine such exposure in a patient with anemia or evidence of seriously impaired hepatic function.

Rocky Mountain Medical Journal, Denver

45:1-96 (Jan.) 1948 Partial Index

Modern Surgical Methods in Management of Osteomyelitis. G. J. McKelvey.—p. 21.
Surgical Treatment of Peptic Ulcer with Report of 32 Vagotomies. D. R. Seabrook.—p. 26.
Surgical Treatment of Large Colonic Cancers Which Have Secondarily Invaded Surrounding Structures. R. E. Benson.—p. 32.
Back to Basic Principles in Management of Functional Uterine Bleeding. G. A. Carmichael.—p. 37.
Diagnosis and Treatment of Coronary Heart Disease. F. R. Schemm.—p. 46.
Study of Tuberculosis Patients in Colorado Sanatoria and Their Rehabilitation Needs. E. N. Chapman and Helen E. Wilson.—p. 50.

Book Notices

What You Can Do for High Blood Pressure. By Peter J. Steincrohn, M.D., F.A.C.P. Cloth. Price, $2.50. Pp. 191. Doubleday & Co., Inc., Garden City, N. Y., 1947.

It is difficult for a physician, in writing a book of medical advice for laymen, to avoid the pitfalls of being too technical or too condescending and of magnifying or minimizing symptoms unduly. In his book Dr. Steincrohn has succeeded well in keeping to the safe middle ground. In a chatty, friendly manner he discusses the influence of the emotions on blood pressure and suggests ways by which an individual can learn to control his frame of mind at least to some extent.

Most experienced physicians will agree emphatically with the author's opening statement that "more persons are concerned about the actual height of their blood pressure than with the potential dangers of the atomic bomb." They will also agree with him that "patients have become too conscious of numerals as related to blood pressure." It is unfortunate that so many persons with elevated blood pressures believe that they must have their pressure read at frequent intervals. Dr. Steincrohn pertinently says that if all physicians would stop telling patients how high their pressure is, and if all patients would stop asking, a turning point in the treatment of hypertension would be reached.

Dr. Steincrohn does not pretend to have a magic formula for reducing blood pressure but stresses the importance of keeping one's temper, of securing enough rest and sleep, of keeping one's weight within normal limits and of avoiding overexertion. Little is said about drugs, unless alcohol be considered as such. Evidently Dr. Steincrohn agrees with the late Lewellys Barker's epigram that a man is a fool if he drinks before he is 50, but a greater fool if he does not drink after that age. "A good rule is no alcohol for the intemperate, but a spot of liquor at night for those who can take it or leave it."

This book can be read by the average hypertensive patient—and by his doctor—with profit.

Neuropathology in Its Clinicopathologic Aspects. By I. Mark Scheinker, M.D., Assistant Professor of Medicine (Neurology) and Instructor in Neuropathology, University of Cincinnati College of Medicine, Cincinnati. With a foreword by Tracy J. Putnam, M.D., Professor of Neurology and Neurological Surgery, College of Physicians and Surgeons, Columbia University, New York. Cloth. Price, $6.75. Pp. 306, with 208 illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Ill., 1947.

The material in this book is excellent and is presented in an easily understandable way. The subject matter on pathology is closely integrated with the clinical symptomatology and this makes the book desirable to have for ready reference. There are nine chapters on diseases of vascular origin, neurosyphilis, demyelinating processes, inflammatory diseases, myopathies, syringomyelia, cerebellar disorders, progressive degenerative diseases and presenile and involutional senile degeneration. This book is recommended to all medical students, practitioners of medicine and neuropsychiatrists. It has a fairly large bibliography.

Tropical Nutrition and Dietetics. By Lucius Nicholls, M.D., B.C., B.A., Director of Bacteriological and Pasteur Institutes, Colombo, Ceylon. Second edition. Cloth. Price; $7.50. Pp. 370, with 47 illustrations. Bailliere, Tindall and Cox, 7 and 8 Henrietta St., Covent Garden, London, W. C. 2, 1945.

This enlarged edition has been revised to include the more recent knowledge of nutrition. It is planned primarily for workers in tropical regions and is a reflection of conditions and practices in Ceylon and the East. The initial chapters deal with the physiology and chemistry of the basic food substances. This section is followed by detailed consideration of the individual vitamins, with useful tables of food sources and available quantities. There is a useful and extensive list of foodstuffs, including fruits and vegetables, with the corresponding energy, mineral, thiamine, vitamin A and ascorbic acid values. A brief chapter on insect pests of stored cereal and pulses is useful for the tropical worker. The treatment of the subject matter and the content of the text as a whole is oriented to the practitioner.

America's Needs and Resources: A Twentieth Century Fund Survey Which Includes Estimates for 1950 and 1960. By J. Frederic Dewhurst and Associates. Cloth. Price, $5. Pp. 812, with 42 illustrations. The Twentieth Century Fund, Inc., 330 W. 42d St., New York 18, 1947.

This book is a one volume encyclopedia of the economy of the United States. Within its pages are marshaled all the salient facts of our economic life: current trends, war lessons, the nature of needs and the dimensions of the resources with which they can be met. To this the authors have added their guesses of what our economy can produce in 1950 and in 1960.

For these guesses the book is most in demand. The authors are careful to say that theirs is no "plan" or prediction of what will happen; rather it is an estimate of what can happen in our economy if each sector functions as well in the future as it has at any time in the recent past.

Consumer requirements are discussed in nine major categories, of which medical care is one. The authors of this section—both employees of the Social Security Administration—emphasize that needs for medical care will best be satisfied by improved organization of medical services; they specify group practice as an example of this.

The volume omits consideration of the effects of continuing shipments of relief supplies to foreign countries and of the possibility of another "great depression."

Practical Clinical Psychiatry. By Edward A. Strecker, A.B., A.M., Sc.D., Professor of Psychiatry, School of Medicine, University of Pennsylvania, Philadelphia; Franklin G. Ebaugh, A.B., M.D., Professor of Psychiatry, University of Colorado School of Medicine, Denver, and Jack R. Ewalt, M.D., Professor of Neuro-Psychiatry; Director, Galveston State Psychopathic Hospital, University of Texas Medical Branch, Galveston. Section on Psychopathologic Problems of Childhood by Leo Kanner, M.D., Associate Professor of Psychiatry, Johns Hopkins University School of Medicine, Baltimore. Sixth edition. Cloth. Price, $5. Pp. 476. The Blakiston Co., 1012 Walnut St., Philadelphia 5, 1947.

This sixth edition of "Practical Clinical Psychiatry" is the best to date published by the authors. There are fourteen chapters starting with personality development and function followed by methods of psychiatric examination, the organic reaction types, toxic psychosis, the affective and schizophrenic reaction types, constitutional psychopathic inferior, paranoid reaction types and paranoia, traumatic reactions, psychoneurosis, psychosomatic medicine and pathologic drinking. The problems of childhood make up the last chapter. The authors are justified in stating that the basic idea of psychosomatic medicine is ancient. Their plea for training of all medical students in psychiatry from the first day of entrance to school should be followed. The chapter on pathologic drinking is excellent. This book is highly recommended to all medical students and practitioners of medicine.

A Synopsis of Surgical Anatomy. By Alexander Lee McGregor, M.Ch., F.R.C.S., Surgeon, Johannesburg General Hospital, Johannesburg, South Africa. With a foreword by Sir Harold J. Stiles, K.B.E., F.R.C.S. Sixth edition. Cloth. Price, $6.50. Pp. 714, with 699 illustrations by Dr. E. A. Thomas. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2; John Wright & Sons, Ltd., 28 Orchard St., Bristol 1, England, 1946.

This is always a valuable book, presenting in schematic and outline form a complete picture of human anatomy. The previous edition appeared in 1943, and thus only minor changes are to be expected. These revisions are chiefly apparent in the increased attention to the autonomic nervous system, the relative importance of which has increased in clinical significance. As always, this work can be recommended to those seeking a concisely diagrammatic review of anatomy.

Hobday's Surgical Diseases of the Dog and Cat. Edited by James McCunn, M.R.C.V.S., M.R.C.S., L.R.C.P., Professor of Veterinary Anatomy, Royal Veterinary College, London. Fifth edition. Cloth. Price, $6. Pp. 422, with 331 illustrations. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

The first edition of this standard work appeared in 1900. This new edition does not differ greatly from the earlier ones. It is a manual which lists the commonest diseases of the dog and cat which require surgical care. Diagnostic procedures are not given much attention. The descriptions of surgical technics are adequate but somewhat outmoded in some instances. The book would be of some value to those who care for animal colonies used for medical research.

Essentials of Endocrinology. By Arthur Grollman, Ph.D., M.D., F.A.C.P., Professor of Medicine and Chairman of the Department of Experimental Medicine, the Southwestern Medical College, Dallas, Texas. Second edition. Fabrikoid. Price, $10. Pp. 644, with 132 illustrations. J. B. Lippincott Co., 227 S. Sixth St., Philadelphia 5, 1947.

The author has made several previous contributions to the literature on endocrinology. There is first a brief basic survey covering the scope and history of endocrinology and the origin, nature and uses of hormones. Thereafter, the subject is dealt with under five headings:

1. Endocrine glands of the cranial cavity (hypophysis, hypothalamus, pineal).
2. The branchiogenic organs (thyroid, parathyroid, thymus).
3. The endocrine organs of the abdominal cavity (pancreas, adrenals).
4. The hormones of the reproductive system (male, female).
5. The hormones derived from nonendocrine organs.

Under each gland there is a description of the anatomy, physiology, pathology and biochemistry, also a section on clinical considerations. Some clinical sections are good, but this is the minor part of the book. Since the book was written for the general practitioner, it seems overweighted in favor of descriptions of biologic and chemical investigations. Especially is this true of the section on the hormones of the reproductive system. Although the thymus and pineal have no known endocrine function at present, they are discussed at considerable length. There are tables giving commercially available endocrine products and their standardization.

The Guarantee of Annual Wages. By A. D. H. Kaplan. Cloth. Price, $3.50. Pp. 269. The Brookings Institution, 722 Jackson Place, N. W., Washington 6, 1947.

The Brookings Institution offers here a consideration of a proposal to improve the lot of persons who work for wages; emotional erosion may be the result of workers' fear of losing their jobs. However, a measure which meets the needs of one group may injure the interests of other groups. The author explains that guaranteed annual wages are suitable for certain industries--chiefly those with predictable seasonal variation in productivity. But to force all industries into the mold would require something akin to guaranteed production plans for each industry if member firms are to stay afloat. The minimum result would be the creation of new rigidities in a price system which works best when kept flexible and new monopolistic elements in an economy that works best without dominant agencies. The maximum result would be an approach to a fully planned industrial production. With either result, consumers would be offered only the products of firms which achieved mass production without much fluctuation in output. New enterprises, particularly new products, would become conspicuous by their absence.

The author's justifiable conclusion is that guaranteed annual wages have a place in the scheme of things, but that the nation's industry should not be dosed with a medicine that works for a specialized few of its member firms.

Pharmaceutical Laboratory Manual. By R. A. Kuever, Ph.G., Ph.C., Dean of the College of Pharmacy, State University of Iowa, Iowa City. Cloth. Price, $2.75. Pp. 290. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1947.

This compilation of one hundred and forty experiments in pharmaceutic compounding is intended for teaching pharmacy students. The experiments cover a wide range of preparations found in U. S. P. XIII and N. F. VIII, graded from the simple preparation of "waters," "solutions" and "infusions" to more complex preparations such as "vanishing cream" and "tooth paste." Many of the preparations are probably outmoded when viewed in the light of modern therapy. Each experiment leads to the production of a practical quantity of material, although the student may never later be called on to make such products. Directions for preparation and information concerning the uses and mode of administration, storage, constituents and the chemistry involved are provided for each product. A facing page of pertinent questions, with space for written answers, accompanies each experiment outline. The book contains much useful information for those pharmacy students whose interest may lie in the field of pharmaceutic manufacturing.

Lezioni di clinica medica [Vol.1°]. Di Luigi Condorelli, direttore della r. Clinica medica di Catania, Catania. Collana di scienze mediche, I. Boards. Price, 655 lire. Pp. 189, with 25 illustrations. Casa editrice A. P. E. (Azienda poligrafica editoriale), Corso Italia, 23, Catania, 1946.

Eight lectures delivered by Dr. Condorelli to his students make the content of the book. The cases chosen for discussion are of some interest, but some daring diagnoses such as that of pulmonic stenosis and patency of the ductus and that of coarctation of the aorta and patency of the ductus leave the reader perplexed on their exactness, in the absence of surgical or postmortem control and of more complete clinical work-up. The writing is redundant and verbose, and the frequent digressions from the case into entirely unrelated subjects make the presentation of material rather confused. The editorial form is commendable.

Surgical Pathology. By William Boyd, M.D., M.R.C.P., F.R.C.P., Professor of Pathology, The University of Toronto. Sixth edition. Cloth. Price, $12. Pp. 858, with 530 illustrations. W. B. Saunders Co., West Washington Square, Philadelphia 5, 1947.

It is interesting to compare this edition with the one of ten years ago. The space devoted to infections is now considerably smaller, as visible tribute to the effectiveness of the antibiotics. The chapter on shock has likewise shrunk, plasma and the blood bank having diminished the pathologists' supply of material from these sources. Thus the pathologist quickly reflects the trends of modern surgery. Congenital cardiac deformities, inaccessible lesions and obscure tumors of that era all are now within the surgeon's domain. The revisions made in this volume are needed to keep pace with the giant strides of modern medicine. It is heartening to see so many changes where least expected. The author has managed, as usual, to keep abreast of the tide and is maintaining the eminent place in pathology he long since attained.

Synopsis of Operative Surgery. By H. E. Mobley, M.D., F.A.C.S., Chief of Surgery at St. Anthony's Hospital, Morrilton, Ark. Second edition. Fabrikoid. Price, $6. Pp. 416, with 383 illustrations. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1947.

Because this book contains "acute appendicitis is usually best handled by packing with ice, keeping the patient quiet and at rest for a few days until the acute inflamed condition subsides" it is not worth reviewing for scientific purposes.

Hospital and Public Health Resources in New Jersey: A Source Book. Part 1 of Report of New Jersey Survey of Hospital and Health Center Facilities under Federal Hospital Survey and Construction Act. Paper. Pp. 114, with illustrations. State of New Jersey, Department of Institutions and Agencies, Trenton, 1947.

Congress passed the Federal Hospital Survey and Construction Act to assist the several states in taking inventory of their existing hospitals, in surveying the need for construction of more hospitals and in developing programs for public and nonprofit hospitals. When completed, in combination with the present facilities, these programs should meet the need of adequate physical facilities capable of furnishing adequate services to all their inhabitants. The final step in this program is to construct the hospitals found to be needed.

In New Jersey (the state described in this pamphlet) the Department of Institutions and Agencies was assigned the task of administering the federal program. It is the duty of this department to present a plan showing the over-all need for additional hospitals and public health centers in the state. As this plan is being evolved, the department has issued this pamphlet as a source book. It contains information about all types of facilities for medical care available in New Jersey. This study presents a precise and complete view of the type and extent of services by hospitals, physicians, dentists, nurses, pharmacists and public health services in the state.

In regard to the general problem of meeting mounting hospital deficits and securing adequate reimbursement by the hospitals for the care of the indigent patient, the following is taken from a study recently made by the New Jersey Hospital Association and the New Jersey Department of Institutions and Agencies: "Only through governmental payments can the hospitals continue to furnish the service on which communities have come increasingly to depend as a central feature of the total health and welfare program."

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

SECONDARY ANEMIA IN THE AGED

To the Editor:—Is folic acid indicated and has it any beneficial effect in the treatment of secondary anemia in a patient with advanced arteriosclerosis who is 82 years of age? Are there toxic side reactions?

Captain, M.C., U. S. Army.

Answer.—No reason exists for anticipating toxic manifestations from the moderate administration of folic acid to persons at any age. Though it is impossible to be certain that folic acid will be helpful to the patient cited in the query because of lack of precise information, it is highly probable that it will be helpful. Parenteral liver extract is more promising, however. In older persons one observes mixed forms of disorders more frequently than pure types. Diagnosis of specific disease entities in the elderly can be carried too far. For example, anemia is frequently due to both a nutritional (raw material) deficiency and a primary hemopoietic inadequacy. Unless both conditions are treated therapy is only partially successful. Similarly, many instances of chronic hypertrophic arthritis in later years are complicated by superimposed gout which is seldom discovered. Anemia even of minor degree in a patient aged 82 with advanced arteriosclerosis is a serious handicap: with loss of vascular flexibility the quality of the circulating blood becomes increasingly significant. Small (250 cc.) transfusions of blood followed by antianemic therapy are frequently helpful.

DIET IN TUBERCULOSIS

To the Editor:—In obese patients with pulmonary tuberculosis treated by rest in bed can weight be reduced to near normal without danger? What should be the composition of the diet, and how many calories per day, or per pound per day, should be allowed? The patient is 30 years of age, 6 feet 1 inch (185.42 cm.) tall and weighs 235 pounds (106.6 Kg.). How fast can the weight be reduced, and what should final weight be? Are high protein diets and high vitamin A diets as well as diets high in calcium and phosphorus of any therapeutic value in pulmonary tuberculosis?

M.D., Michigan.

Answer.—The main object in the dietetic treatment of the tuberculous patient is to enable him to regain his lost weight but not to make him unnecessarily fat. The weight of an obese tuberculous patient can be safely reduced at the rate of 3 to 4 pounds (1.4 to 1.8 Kg.) per month, and his ideal weight is about 10 pounds (4.5 Kg.) above the average weight for his age and height. A reduction diet must include an increased supply of vitamin A and ascorbic acid to preserve nutritive equilibrium. Protein requirement is estimated at 1.5 to 1.75 Gm. per kilogram of body weight (Fishberg, M.: Pulmonary Tuberculosis, ed. 4, Philadelphia, Lea & Febiger, 1932, vol. 2), and carbohydrates should furnish about 40 per cent of the caloric requirements. The healthy person at complete rest requires 15 calories per pound (Goldberg, B.: Clinical Tuberculosis, ed. 5, Philadelphia, F. A. Davis Company, 1946, vol. 1) and from this standard a reduction diet can be estimated at the discretion of the physician. The patient's sense of well-being and satisfaction are factors to be considered. Thyroid extracts and amphetamine compounds are contraindicated. Diets rich in minerals have no proved value in the treatment of tuberculosis.

FLUOROSCOPY OF INFANTS

To the Editor:—Some pediatricians fluoroscope the infant at every monthly visit. What are the indications for fluoroscoping a child during the first year of life?

M.D., New York.

Answer.—It is generally considered good pediatric practice to fluoroscope an infant at the first office visit, usually when the child is 1 month of age. A few good pediatricians do not use a fluoroscope at all, except in the case of a sick infant. If no abnormalities are observed at the first fluoroscopic examination, it is unnecessary to refluoroscope the infant for a year or two, unless an illness develops that requires fluoroscopic aid in diagnosis. If at the first fluoroscopic examination an abnormality is observed such as a wide mediastinal shadow, enlarged heart or abnormal epiphysial development then progress might be observed every few months using the fluoroscope. Fluoroscopy of a well baby every month is bad practice because of the danger of repeated exposure to roentgen rays with their harmful effects.

AMENORRHEA

To the Editor:—A white woman aged 24 last had a regular menstrual period seventeen months ago. She started to menstruate at 13 years of age. The interval, duration and absence of cramps were all perfectly normal. Seventeen months ago the interval went from twenty-eight days to two or three months on two or three occasions, and then she stopped flowing. Her husband was overseas. The physical examination revealed a corpus which was slightly smaller than normal. Her basal metabolic rate was found to be minus 21 per cent and her red blood cell count was 4,100,000.

Therapy has consisted of an iron preparation, which has corrected her anemia, and thyroid which has brought her basal metabolic rate up to plus 1 per cent. She has been given three courses of "gonadogen" (a gonad-stimulating substance from serum of pregnant mares) in an attempt to establish a normal cycle. A day was assumed to be the first of a cycle and 10 units were given subcutaneously for fourteen consecutive days; in the event that she began to flow on or about the twenty-eighth day, the drug then would have been given similarly for fourteen more days. She did not flow spontaneously, so on the thirty-fifth day after the first dose or the first course or gonadotropic therapy the second fourteen day course was given. Daily 0.05 Gm. of ethinyl estradiol was taken by mouth for fourteen days concurrently with the gonad-stimulating substance. Then on the fifteenth, sixteenth and seventeenth days 10 units of progesterone was given parenterally. Three days after the last dose of progesterone she had a normal flow, the first in sixteen months. The record of daily basal temperatures before arising each morning has revealed that ovulation is not taking place, so this flow was probably on the basis of deprivation of progesterone in the presence of the estrogenic substance which had been taken by mouth.

Are any other measures suggested? She has not ovulated this third cycle. Ten units of the gonadotropic substance were given daily with the first day of flow, and then it was continued for fourteen days; no estrogen or progesterone has been given this time because, inasmuch as she is not ovulating, any flow would simply be based on deprivation of progesterone and not on ovulation.

M.D., California.

Answer.—As the amenorrhea in this patient is approximately of a year and a half's duration, it appears that there is some organic disturbance of the ovaries, since functional amenorrhea seldom lasts this long. Endometrial biopsies or even vaginal smears would be useful in indicating the degree of ovarian function. The refractoriness of the ovaries to gonadotropic therapy is confirmatory of the idea that the ovaries are damaged although gonadotropic therapy is at present on a rather unsatisfactory basis. Substitution therapy with ovarian hormones, estrogen and progesterone could probably cause a menstrual flow simulating the true cyclic bleeding when properly administered, but this does not relieve the basic condition. The suggestion is made that if it is possible a pelvic peritoneogram be made to demonstrate the size of the ovaries. Atropic ovaries would indicate the possibility of an irreversible condition. If the ovaries are normal in size or even moderately enlarged, it is possible that they are encased in a fibrous capsule which suppresses the cyclic activity of the ovaries. Such a condition often responds to partial resection of the ovaries with normal menstruation.

PHANTOM LIMB

To the Editor:—I have a patient who had a midthigh amputation eighteen months ago. He complains of moderate pain in the stump and of phantom limb. He has an artificial limb which he does not wear much. I have injected procaine hydrochloride and "trithesia (oil solution)" (propyl para-aminobenzoate 4 per cent; procaine base 1.5 per cent, and benzyl alcohol 5 per cent) a few times with only short relief. He resorts to alcohol or opiate at times for temporary relief. Please advise treatment.

G. C. Chamness, M.D., Zeigler, Ill.

Answer.—There is no conservative treatment for your case that will permanently relieve your patient of pain. If the latter is severe enough to cause him to take opiates and alcohol it is suggested that he have a competent neurosurgeon decorticate the area of the opposite postcentral gyrus receiving painful sensations from the involved thigh. This should produce complete loss of pain in the stump and in the phantom limb. This type of complication following amputations is not common. It is due, undoubtedly, to central processes which have no organic foundation in the central nervous system but in the peripheral nervous system. After the amputation there is irritation of the central conducting axons within a neuroma or at the proximal end of a freshly cut mixed nerve. These are the axons that formerly brought impulses to the higher centers from the part which has been amputated. Even after this irritation is removed the abnormal reflexes previously provoked continue to cause the sensations and pain. Such complicating symptoms can be prevented by placing a nonabsorbable ligature tightly around the uninjured nerve trunk about 1 inch (2.54 cm.) above the amputation site at the time of the amputation. An excellent article on the subject by Louis G. Herrmann and Edward W. Gibbs appeared in the *American Journal of Surgery* (**47:168** [Feb.] 1940).

CONGENITAL MEGACOLON

To the Editor:—A boy aged 5 years was operated on for megacolon about six months ago because medical treatment was inadequate. The entire colon down to the rectosigmoid junction was removed and an ileocolostomy established using a Rankin clamp. The Rankin clamp was later removed and a fecal fistula was established. The patient had an enormous dilatation of his entire descending colon and about one-half of his transverse colon. Following the colectomy he was bothered considerably with distention. Discharges from the ileostomy were liquid in character. Distention was finally brought under control by the use of prostigmine. After thirty days the ileocolostomy was closed, supposedly in a satisfactory manner, but it reopened and was closed a second time. After the second closure the patient had bowel movements, liquid in character, and he again became distended. This condition was relieved by administration of prostigmine intramuscularly and orally. However, his ileocolostomy again broke down, and at present he has a small opening through which a great deal of fecal matter drains. At times he has a fairly normal bowel movement. His distention has gradually subsided, but his bowel movements continue to be soft and liquid. He has received prostigmine up until the last month and has gradually gained weight. He eats almost anything and feels well. I will close the opening of the ileocolostomy some time in the near future. Why do his bowel movements continue to be liquid and why has he had such an enormous amount of dilatation? Modifying his diet and using various preparations, including opiates, have had no effect on his stool. There is no reason to suspect an obstruction at the juncture of the ileum and rectum.

M.D., North Dakota.

Answer.—In congenital idiopathic megacolon there is, in addition to dilatation and hypertrophy of the bowel, a contraction of the rectosigmoid sphincter, the sphincter O'Beirne, and it is possible that the remaining distention in this instance and the reason for the breakdown of the ileocolostomy is because of the relative obstruction produced at this point. It is suggested that forceful dilation of the anal and rectosigmoidal sphincters be performed. This will probably permit the satisfactory closure of the fistula and will overcome the distention. The diarrhea is likely to persist for some time, because after a total colectomy the ileum does not take over the function of the large bowel. For this reason it would probably have been better not to have removed the entire colon but to have left a portion of the ascending colon at the time of the original operation. It is possible that the remaining portion of the rectosigmoid may take over the function of the colon sufficiently to permit the child to get along fairly well without too many bowel evacuations.

BILINGUAL CHILDREN

To the Editor:—I have been asked to solve the following problem: Should a couple of foreign birth (German) who speak their native language and English equally well try to teach their child, 1 year of age, both languages at the same time or teach him the foreign language later at the age of 5 or 6? As there seems to be some doubt as to the ability of the average child to learn two languages, would not an attempt at this lead to (1) retardation of development of speech in both languages; (2) due to the two languages having many similarities, the development of a mixture which may be hard to correct later, or (3) due to the inability to express himself according to his age, emotional maladjustment or even retardation of mental development?

M.D., Illinois.

Answer.—Prevailing opinion is that the child should be taught the single language, English, during its first five years. While many children can, and do, become bilingual in their early years without difficulty, there is a chance that any particular child might develop neurotic tendencies because of the bilingual pressure. In answer to the specific questions: (1) the average child (one with average intellectual ability and average auditory discrimination) might very well show a retardation or withdrawal from language due to the dual pressure; (2) a mixture of the two languages might occur if the pressure for perfection was severe in the home, leading to a relaxation away from the home, and (3) emotional maladjustment might well follow the conflict established in the child's mind by the dual language pressure, though it is questionable whether there would be mental retardation due to the attempt.

DISTILLED DRINKING WATER

To the Editor:—We are attempting to obtain information on the effects on infants and children of drinking distilled water over extended periods of time. Please supply reports or information on this subject.

J. P. Holt, M.D., New York.

Answer.—As long as an infant is ingesting milk, either human milk or customary formulas of cow's milk, and is retaining it, the intake of mineral salts will be ample with some to spare, so that he does not have to depend on the mineral content of the water consumed. Consequently distilled water would have no influence for good or evil. In an older child the absence of iodine and fluoride from distilled water might conceivably influence the development of goiter or dental caries. The fluorine ingested in foods is utilized much less than that in water. Distilled water per se would have no unfavorable influence provided the child were otherwise on a normal well balanced diet.

STREPTOMYCIN IN TUBERCULOSIS

To the Editor:—I am treating 7 patients with progressive pulmonary tuberculosis with streptomycin. Each has extrapulmonary tuberculosis; 2 have involvement of the spine and cold abscess formation. The others have either tuberculous laryngitis or a tuberculous fistula in ano. Treatment was discontinued in 2 patients because of dermatitis, headache and decided elevation of temperature. Vestibular disturbance occurred in all patients but was serious only in 1. Hypochromic macrocytic anemia has developed in all cases. The red blood cell count is 4,000,000 to 5,000,000 in all cases. Sahli hemoglobin determination is 70 to 45 per cent. Liver extract (10 units biweekly), liver and iron, ferrous sulfate alone, and folic acid have not helped. Is the hemoglobin reduction permanent? What therapeutic measures are indicated? Streptomycin sulfate was used in all cases. Is the hydrochloride better? The treatment period was one to four months. Results in those receiving 1.5 to 2 Gm. a day for two months have been dramatic. Is there a technic for desensitization of patients that have dermatitis?

M.D., Hawaii.

Answer.—G. L. Muller (Clinical Significance of the Blood in Tuberculosis, New York, the Commonwealth Fund, 1943. p. 215, 217) found an anemia (hemoglobin below 12 Gm. per hundred cubic centimeters) in 22 per cent of 1,130 patients with tuberculosis. Of those with anemia, 8.4 per cent had a macrocytic hypochromic type. A generalized intoxication is probably the most important etiologic factor. Indirect evidence for this is offered in the query by the failure of the patients to respond to liver, folic acid or iron therapy. If these patients have a megaloblastic bone marrow, folic acid and oral aqueous liver extract should receive further trial. The hemoglobin level should increase with improvement in the infection.

A recent report by the Veterans Administration, the Army and the Navy (The Effect of Streptomycin on Tuberculosis in Man, Preliminary Statement, *J.A.M.A.* **135:**634 [Nov. 8] 1947) and another by Farrington and co-workers (Farrington, R. F.; Hull-Smith, H.; Bunn, P. A., and McDermott, W.: Streptomycin Toxicity: Reactions to Highly Purified Drug on Long-Continued Administration to Human Subjects, *ibid.* **134:**679 [June 21] 1947) indicate that anemia is not a toxic manifestation of streptomycin therapy. The latter authors point out that identical toxic symptoms occur with streptomycin hydrochloride as with the sulfate.

No report was found of a technic for desensitizing patients to streptomycin. The pruritus associated with dermatitis is usually relieved by diphenhydramine hydrochloride ("benadryl hydrochloride"). Administration of streptomycin should be discontinued if exfoliative dermatitis occurs.

STREPTOMYCIN USED INTRAPERITONEALLY

To the Editor:—Is it advisable to put a solution of streptomycin in the peritoneal space around the cecum after removing an appendix covered with exudate or a perforated appendix?

John P. Gifford, M.D., Vero Beach, Fla.

Answer.—It is permissible to use streptomycin locally in the peritoneal space around the cecum after removing an appendix covered with exudate or a perforated appendix. It would be better, however, to inject streptomycin intramuscularly in amounts of 1 Gm. daily in divided doses every twelve hours for at least ten days when localized peritonitis is present. Parenteral therapy is always preferable to local treatment, and it is commonly more effective.

CYANIDE POISONING

To the Editor:—I read with interest your reply to the inquiry on cyanide poisoning in *The Journal,* Nov. 29, 1947, page 878. An error appears with regard to the chemistry of calcium cyanide. Calcium cyanide in the presence of moisture hydrolyzes rather rapidly, liberating hydrogen cyanide or hydrocyanic acid. This compound is not a skin irritant, although it may be absorbed through the skin. Cyanogen is not liberated from calcium cyanide on exposure to the moisture of the air. Cyanogen may be obtained from certain of the cyanides with difficulty, for example, on heating mercuric cyanide. Also, the reaction of potassium cyanide with copper sulfate yields cyanogen. Likewise, the dehydration of ammonium oxalate by means of phosphorus pentoxide liberates this compound.

Certain plants manufacture large quantities of hydrocyanic acid and its salts. Inevitably, a few accidents occur each year which result in acute hydrocyanic acid poisoning. Some of these cases have been rather severe, but in each instance the condition has responded more or less rapidly to the treatment suggested by Chen and his co-workers, i. e., the inhalation of amyl nitrite with artificial respiration, followed by the intravenous administration of sodium nitrite and sodium thiosulfate. In some cases unconsciousness has lasted for as long as eight hours. These cases, therefore, have given plant physicians an opportunity for accurate clinical observations. It is their considered opinion that such poisoning is an "all or none" type—that is, the patient either dies or recovers completely with no demonstrable residual pathologic condition.

They also believe that chronic cyanide poisoning does not exist, since small quantities of cyanide are detoxified so rapidly and completely, the cyanide apparently being converted to thiocyanates.

D. O. Hamblin, M.D., 30 Rockefeller Plaza, New York 20

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 136, No. 17
Chicago, Illinois

Copyright, 1948, by American Medical Association
April 24, 1948

THE PRESENT STATUS OF VIRUSES AND VIRUS DISEASES

EDWIN W. SCHULTZ, M.D.
Stanford University, Calif.

A hundred years ago the existence of viruses was unknown. The beginning of knowledge of this group of infectious agents indeed goes back only a half century. It is not yet fifty years since Beijerinck [1] established that the infectious agent of tobacco mosaic disease is filtrable and called it a "contagious living fluid" and since Loeffler and Frosch [2] identified the first ascertained virus disease of animals, foot-and-mouth disease. In the decade or so which followed a small number of other plant and animal diseases were identified as of virus origin. Among these were yellow fever, rabies, vaccinia-variola and poliomyelitis. But while the boundaries of knowledge regarding virus diseases widened gradually from this beginning, it was not until shortly after the first World War that the advances became rapid. This new period was ushered in by the discovery that bacteria, the outstanding partners of viruses in causing infections, are themselves victims of a virus disease. At first there was some uncertainty as to whether this disease, bacteriophagy or the Twort-d'Herelle phenomenon,[3] could be classified along with other then known virus diseases. It was viewed with caution by many. The precise nature of the agent responsible became the subject of warm debate, and one might ask today how much d'Herelle's staunch advocacy of bacteriophage as a living "ultramicrobe" had to do with the acceleration of interest in viruses which took root in the early twenties. Certainly bacteriophagy afforded an opportunity to study a virus disease under relatively simple and inexpensive conditions and still affords a favored approach to some of the unsolved problems in the virus field.[3f]

Whatever may be said regarding the stimulus which prompted the rapidly widening interest, the advances which have been made in knowledge of viruses during the past quarter of a century are little short of phenomenal. Many of these advances have been summarized in manuals, monographs and reviews.[4] No little of this advance can be credited to the professional pathologists, but a great deal must also be credited to men who set out to be chemists and physicists but later found themselves at the side of the animal and plant pathologists, dealing with aspects of problems which they alone were prepared to handle. Nowhere else in the advance of medical science was the need for cooperative effort greater, and nowhere else have the results proved more gratifying. What then have been the accomplishments of these years? What do men know with reasonable certainty about these agents, and what are some of the problems which remain unsolved? It is obvious to every one here, I know, that the achievements of a quarter of a century can scarcely be summed up in a quarter of an hour. I can recall only vaguely how I was led into this impossible task. There are, of course, moments far in advance of meetings when titles appear less ominous.

Men know today that virus infections are widespread. The invasion stretches from such lowly forms as bacteria to man. Many of the groups attacked by viruses are known to suffer with more than one virus disease. Bacteria are involved not by one but by many viruses—viruses which are distinguishable from each other in species or strain specificity, in size, in antigenic constitution and in other respects.[3] In other words, an impressive array of viruses attack bacteria alone. It is not known that there are viruses which attack protozoa, but to find that these forms also are included would not be surprising. In the plant kingdom many species of plants are known to be singled out by viruses of one kind or another,[5] and the studies which have been carried out in this area alone have advanced knowledge of viruses more than can be estimated. The

---

From the Department of Bacteriology and Experimental Pathology Stanford University School of Medicine.

Read in the Symposium on Virus Diseases before the Section on Pathology and Physiology at the Ninety-Sixth Annual Session of the American Medical Association Atlantic City, N. J., June 12, 1947.

1. Beijerinck, M. W.: Ueber ein Contagium vivum fluidum als Ursache der Fleckenkrankheit der Tabaksblatter, Verhandl. d. k. Akad. v. Wetensch. te Amsterdam (Sect. 2) **6:** 3-22, 1898; Centralbl. f. Bakt. (Abt. II) **5:** 27-33, 1899.

2. Loeffler and Frosch: Berichte der Kommission zur Erforschung der Maul- und Klauenseuche bei dem Institut fur Infektionskrankheiten in Berlin, Centralbl. f. Bakt. (Abt. I) **23:** 371-391 (March) 1898.

3. (*a*) Twort, F. W.: An Investigation on the Nature of Ultramicroscopic Viruses, Lancet **2:** 1241-1243 (Dec. 4) 1915. (*b*) d'Herelle, F.: Sur un microbe invisible antagoniste des bacilles dysenteriques, Compt. rend. Acad. d. sc. **165:** 373-375 (Sept. 10) 1917; (*c*) The Bacteriophage and Its Behavior, English translation by G. H. Smith, Baltimore, Williams & Wilkins Company, 1926, p. 629. (*d*) Krueger, A. P.: The Nature of Bacteriophage and Its Mode of Action; Physiol. Rev. **16:** 129-172 (Jan.) 1936. (*e*) Delbrück, M.: Bacterial Viruses or Bacteriophages, Biol. Rev. **21:** 30-40 (Oct.) 1946. (*f*) Craigie, J.: The Significance and Applications of Bacteriophages in Bacteriological and Virus Research, Bact. Rev. **10:** 73-88 (Sept.-Dec.) 1946.

4. (*a*) Doerr, R., and Hallauer, C.: Handbuch der Virusforschung, ed. 1, Berlin, Julius Springer, 1938; ed. 2, 1939. (*b*) Gildemeister, E.; Haagen, E., and Waldmann, O.: Handbuch der Viruskrankheiten mit besonderer Berücksichtigung ehrer experimentellen Erforschung, Jena, Gustav Fischer, 1939, pp. 652 and 768. (*c*) Levaditi, C.; Lépine, P., and others: Les ultravirus des maladies humaines, Paris, Libraire Maloine, 1938, p. 1182. (*d*) Levaditi, C.; Lepine, P.; Verge, J., and others: Les ultravirus des maladies animales, ibid., 1943, p. 1126. (*e*) van Rooyen, C. E., and Rhodes, A. J.: Virus Diseases of Man, London, Oxford University Press, 1940. (*f*) Virus and Rickettsial Diseases with Especial Consideration of Their Public Health Significance, A Symposium Held at the Harvard School of Public Health, June 12-17, 1939, Cambridge, Mass., Harvard University Press, 1940, p. 907. (*g*) *Members of the Rockefeller* Institute for Medical Research Virus Diseases, Ithaca, N. Y., Cornell University Press, 1943. (*h*) Lennette, E. W.: Recent Advances in Viruses: A Brief Survey of Recent Work on Viruses and Virus Diseases, Science **98:** 415-423 (Nov. 12) 1943. (*i*) Burnet, F. M.: Virus as Organism: Evolutionary and Ecological Aspects of Some Human Virus Diseases, Cambridge, Mass., Harvard University Press, 1945, p. 134. (*j*) Filtrable Virus Diseases, in Topley, W. W. C., and Wilson, G. S.: Principles of Bacteriology and Immunity, ed. 3, Baltimore, Williams & Wilkins Company, 1946, pp. 1869-1982.

5. (*a*) Holmes, F. O.: Handbook of Phytopathogenic Viruses, Minneapolis, Burgess Publishing Co., 1941, p. 221. (*b*) Bawden, F. C.: Plant Viruses and Virus Diseases, ed. 2, Waltham, Mass., Chronica Botanica Company, 1943, p. 294.

virus of tobacco mosaic disease was not only the first virus to be identified, but the first to be obtained in a purified form. This was the accomplishment of Wendell M. Stanley,[6] a chemist, who obtained the virus in a paracrystalline form in 1935, twelve years ago. This achievement marked the beginning of a new era in the study of viruses, one in which purification and more complete analysis of their individual properties became an important part of subsequent progress. For his achievement in virus chemistry Stanley was awarded the Nobel Prize last year.

In the animal kingdom the forms which are attacked range from insects to man. In many instances, the infections caused are strictly limited to one species or type of host, while in others the same viruses reach into quite unrelated hosts. In some cases the infections induced are apparently always associated with clinical manifestations; in others the infections are often apparent in one type of host and inapparent in another. The recognition that infections may occur in some hosts in a clinically inapparent form constitutes one of the important advances in the epidemiology of virus diseases. To know that a virus which attacks one type of host with devastating effect has or may have a silent reservoir in some other host is in itself a weapon against that virus. Inapparent infections are now known to be widespread. They have been recognized not only in animals but in higher plants and bacterial forms as well.[7]

There have been advances in the devices used for the study of viruses. The discovery of viruses may be credited to the use of bacteria-tight filters, such as are used to separate bacterial toxins from the organisms in a medium. It was Iwanowski's[8] apparent failure to catch the significance of his filtration results in the study of tobacco mosaic disease six years before Beijerinck made his observations which leaves him with a doubtful right to be regarded as the discoverer of filtrable viruses. At any rate, for a number of years virtually all that was known about viruses was that they passed bacterial filters. Nothing was known regarding their size, form and structure, and it is not surprising that Beijerinck in 1898 regarded the tobacco mosaic virus as something in true solution. The science of colloid chemistry was then still unborn. Investigators now have direct as well as indirect means of determining virus size and form. Collodion membranes gave the first information as to size—information which later proved more accurate than many had believed. This is a tribute to the colloid chemists who figured in this development, and particularly to Elford,[9] who provided the refinements necessary for dependable results. The next important development was the electron microscope.[10] It confirmed the fact that individual viruses differ widely not only in size (anywhere from 300 down to 10 microns) but in form and internal structure as well. It is now known that not all are spherical but that some are cuboidal or rectangular,[11] others rod shaped,[12] still others sperm shaped[13] and that certain ones are of highly irregular form.[14] The electron microscope has revealed that some viruses possess distinctive internal structure,[15] indicated in general by denser portions within their substance, and suggest a cellular type of organization.

Of equally great importance among the new tools of virus research are those which have been developed for the purification and physicochemical analysis of viruses. Although Stanley in 1935 first purified the tobacco mosaic virus by wholly chemical means, its purification was later more easily effected by differential ultracentrifugation,[16] which was made possible by the development of a new air turbine in a vacuum quantity centrifuge.[17] Out of this air driven quantity centrifuge evolved one of the current types of analytic centrifuges, with which it became possible to determine the homogeneity of supposedly purified virus suspensions, the molecular weight of a virus, its size or its density.[18] Other tools of modern chemistry and biophysics have also been pressed into use,[18c] and the sensitive methods of serology have been employed to reveal differences in their antigenic constitution.[19] Some of the advances and the remaining problems in this general area have recently been outlined by Wyckoff.[20]

Viruses are characterized in part by their dependence on living cells. None are able to grow in the absence of living cells, but this requirement has not prevented the cultivation of many of them apart from their hosts. This problem was met by drawing on the experiences of tissue culturists, and a number of viruses have now been cultivated in the presence of tissue explants. Some have been found to grow in the mere presence of living cells, free and unanchored in a suitable fluid medium,[21] but probably the greatest advance in the cultivation of viruses was the discovery by Goodpasture[22] that the developing egg can be effectively used to propagate them. This method as modified by Burnet[23] has now been successfully applied to a considerable number of viruses. It has found application in the production of viruses for use as vaccines, in the titration of viruses (in which it substitutes for animals), in serologic studies and in the diagnosis of some virus diseases.[24]

---

[6] Stanley, W. M.: Isolation of a Crystalline Protein Possessing the Properties of Tobacco-Mosaic Virus, Science **81:** 644-645 (June 28) 1935; Crystalline Tobacco-Mosaic Virus Protein, Am. J. Botan. **24:** 59-68 (Feb.) 1937.

[7] Burnet, F. M.: Inapparent Virus Infections with Special Reference to Australian Examples, Brit. M. J. **1:** 99-103 (Jan. 18) 1936. Cowdry, E. V.: Inapparent Virus Diseases, Scient. Monthly **45:** 266-275 (Sept.) 1937. Craigie.[3f] Burnet.[41] Holmes.[5a]

[8] Iwanowski, D.: Ueber die Mosaïkkrankheit der Tabakspflanze, Bull. Acad. Imp. Sc. St. Petersburg **35:** 67, 1892; Centralbl. f. Bakt. (Abt. II) **5:** 250, 1899.

[9] Elford, W. J.: A New Series of Graded Collodion Membranes Suitable for General Bacteriological Use, Especially in Filtrable Virus Studies, J. Path. & Bact. **34:** 505-521 (July) 1931; The Sizes of Viruses and Bacteriophages, and Methods for Their Determination, in Doerr and Hallauer,[4a] p. 127.

[10] Ruska, H.; von Borries, B., and Ruska, E.: Die Bedeutung der Uebermikroskopie für die Virusforschung, Arch. f. d. ges. Virusforsch. **1:** 155-169 (March) 1939. Marton, L.: The Electron Microscope: A New Tool for Bacteriological Research, J. Bact. **41:** 397-413 (March) 1941. Stanley, W. M.: Viruses and the Electron Microscope, Chron. Botan. **7:** 291-294, 1943. Mudd, S., and Anderson, T. F.: Pathogenic Bacteria, Rickettsias and Viruses as Shown by the Electron Microscope, J. A. M. A. **126:** 561-571 (Oct. 28); 632-639 (Nov. 4) 1944. Wyckoff, R. W. G.: Some Recent Developments in the Field of Electron Microscopy, Science **104:** 21-26 (July 12) 1946.

[11] Green, R. H.; Anderson, T. F., and Smadel, J. E.: Morphological Structure of the Virus of Vaccinia, J. Exper. Med. **75:** 651-656 (June) 1942.

[12] Stanley, W. M., and Anderson, T. F.: A Study of Purified Viruses with the Electron Microscope, J. Biol. Chem. **139:** 325-338 (May) 1941.

[13] (*a*) Luria, S. [illegible] nderson, T. F.: Electron Microscope Studies on [illegible] et. **46:** 57-76 (July) 1943. (*b*) Edwards, O. F., [illegible] Electron Micrographs of Bacterial Cultures In [illegible], Proc. Soc. Exper. Biol. & Med. **64:** 16-19 (Jan.) 1947.

[14] Bang, F. B.: Filamentous Forms of Newcastle Virus, Proc. Soc. Exper. Biol. & Med. **63:** 5-7 (Oct.) 1946. Cunha, R.; Weil, M. L., and others: Purification and Characters of the Newcastle Disease Virus (California Strain), J. Immunol. **55:** 69-89 (Jan.) 1947.

[15] d'Herelle.[3e] Green, Anderson and Smadel.[11] Luria, Delbruck and Anderson.[13a]

[16] Wyckoff, R. W. G., and Corey, R. B.: The Ultracentrifugal Crystallization of Tobacco Mosaic Virus Protein, Science **84:** 513 (Dec. 4) 1936.

[17] Bauer, J. H., and Pickels, E. G.: A High Speed Vacuum Centrifuge Suitable for the Study of Filtrable Viruses, J. Exper. Med. **64:** 503-528 (Oct.) 1936. Svedberg, T., and Pedersen, K. O.: The Ultracentrifuge, Oxford, Clarendon Press, 1940, p. 478.

[18] (*a*) Bauer, J. H., and Pickels, E [illegible] iven Type of Ultracentrifuge for Molecular [illegible] Med. **65:** 565-586 (April) 1937. (*b*) Pickels, E. [illegible] Practical Aspects of the Ultracentrifugal Analysis of Proteins, Chem. Rev. **30:** 341-355 (June) 1942. (*c*) Lauffer, M. A.: Virus Studies: Biophysical Methods, in Glasser, O.: Medical Physics, Chicago, The Year Book Publishers, Inc., 1944, p. 1653.

[19] Smadel, J. H., and Shedlovsky, T.: Antigens of Vaccinia, Ann. New York Acad. Sc. **43:** 35-46 (April) 1942. Rivers, T. M.: Virus Diseases with Particular Reference to Vaccinia, in Virus Diseases,[4e] p. 3.

[20] Wyckoff, R. W. G.: Some Biophysical Problems of Viruses, Science **101:** 129-136 (Feb. 9) 1945.

[21] Sanders, M.: Cultivation of the Viruses: A Critical Review, Arch. Path. **28:** 541-586 (Oct.) 1939.

[22] Goodpasture, E. W.; Woodruff, A. M., and Buddingh, G. J.: The Cultivation of Vaccine and Other Viruses on the Chorioallantoic Membrane of Chick Embryos, Science **74:** 371-372 (Oct. 9) 1931.

[23] Burnet, F. M.: A Virus Disease of the Canary of the Fowl Pox Group, J. Path. & Bact. **37:** 107-122 (July) 1933.

A striking feature of viruses is their heterogeneity when considered as a group. They frequently exhibit marked differences in the degrees to which they resist certain physical and chemical agents. Extensive studies have made it clear that they are "individualists" and that generalizations from observations on any one of them are apt to rest insecurely. They are not alike in their resistance to heat, cold, drying, hydrogen ion concentrations, organic or inorganic chemical compounds, or to the action of individual enzymes.[25] They are not alike in their chemical constitution or in their biochemical properties.[26] There are resemblances, as well as differences, of course, but taken as a whole they are quite as heterogeneous in makeup and properties as the various hosts they prey on.

They differ in their individual tropisms; that is, in the particular types of cells which they single out for invasion and subsequent multiplication. This usually means some kind or kinds of cells within some particular host. This tropism is apt to be a fairly constant property of a given virus. Observers have become aware, however, that the tropism of a virus may be much less restricted and less fixed than they are sometimes led to believe and that it is also subject to variation.[27] This variation may depend on only slight tissue or environmental differences. The conversion of street rabies virus into fixed virus by brain to brain passage is associated with a loss of ability of the virus to implant itself in peripheral nerves. The variation may reach to new cells or tissues, sometimes with complete loss of the initial tropism. It may occur independently of variation in the antigenic constitution of a virus.

What determines the tropism of a virus is something about which little is known. There is some evidence from observations on bacteriophagy that the antigenic constitution of the host cell and susceptibility to a given virus are related.[28] Since antigenic constitution may be largely determined by genetic factors, it may not be possible to do much artificially to alter these natural relationships. This is an area in which further work is needed.

Variations are also exhibited by viruses in other respects,[29] including variation of their antigenic constitution. The latter may be associated with variation of tropism or may occur independently of it. Variation of antigenic constitution has an important bearing on the serologic identification of viruses. Investigators have learned that viruses which cause individual diseases may fall into different serologic groups and that variation may result from new environmental conditions which are imposed on the virus. Such variations fortunately do not as a rule occur with great ease, so that it has been possible to base much of what is known today about differences among viruses on serologic observations.

Viruses differ in their individual proliferative powers. There are low and high titer viruses. These differences relate not only to viruses causing different diseases but also to individual strains of a given virus. They may not be the same for a given strain when it is propagated in another host, but they tend to become stabilized for a given host and frequently remain the same for it in spite of many serial passages. Little is known regarding the factors which determine these individual differences. They appear to be represented in both the host and the parasite. Low titer strains may not lack in invasiveness and, like more virulent strains, may become widely disseminated in the tissues of the respective hosts, but they seem to lack the ability to multiply sufficiently within the cells they invade to damage them seriously. Such strains may be partly responsible for subclinical infections and naturally acquired active immunity to individual virus diseases.

Little is known about how viruses act to produce their harmful effects on the cells they invade, since they are not as a whole identified with toxic properties. More information is needed in this area.

Since viruses exhibit cell tropisms, the lesions induced center around individual kinds of cells. The effects produced on these cells can and do differ widely. Considering viruses as a whole, these effects range from rapid cell death to mere stimulation of cell growth and multiplication, the latter being a characteristic of the tumor group.[30] To state the effects so broadly is to oversimplify the story somewhat.[31] The distinctive lesion is at any rate an involvement of some kind of cell. Whatever inflammatory reaction may be present is there as a secondary response to this cell injury.

Viruses differ also with regard to the production of inclusion bodies. Some give rise to them; others do not. Those which do, may produce them either in the cytoplasm of the cell or in the nucleus. The cytoplasmic inclusions produced by some viruses consist largely of aggregations of virus particles; those produced by certain other viruses (rabies) seem to consist chiefly of retrograde products derived from the cell itself. In certain virus diseases of plants (tobacco mosaic disease) amorphous cytoplasmic inclusions have been observed to give rise to crystalline inclusions consisting of "virus protein." [32] Nuclear inclusions also differ, the more indicative of a virus infection being the type A inclusions described by Cowdry.[33] Cell inclusions of certain types may be formed in the apparent absence of virus infections, and these "nonspecific inclusions" must, of course, be differentiated from those which are specific.[32] Any formation of inclusion bodies must require time. They are therefore not expected in cells which succumb quickly to the impact of a virus. They are, on the other hand, not necessarily produced in cells which resist the action of a virus. They are helpful when present and characteristic, but their absence does not exclude the possible presence of a virus infection.

---

[24] Beveridge, W. I. B., and Burnet, F. M.: The Cultivation of Viruses and Rickettsiae in the Chick Embryo, Medical Research Council, Special Report Series, no. 256, London, His Majesty's Stationery Office, 1946, p. 92.

[25] Stanley, W. M.: Biochemistry and Biophysics of Viruses: I. Inactivation of Viruses by Different Agents, in Doerr and Hallauer,[14] p 447

[26] Stanley, W. M.: The Architecture of Viruses, Physiol. Rev. **19:** 524-556 (Oct.) 1939; The Biochemistry of Viruses, in Annual Review of Biochemistry, Stanford University, Calif., Stanford University Press, 1940, vol. 9, p. 545; Chemical Properties of Viruses, Scient. Monthly **53:** 197-210 (Sept.) 1941. Bryan, W. R., and Beard, J. W.: Studies on the Purification and Properties of the Rabbit-Papilloma-Virus Protein, J. Nat. Cancer Inst. **1:** 607-673 (April) 1941. Loring, H. S., and Schwerdt, C. E.: Studies on the Purification of Poliomyelitis Virus, J. Exper. Med. **75:** 395-406 (April) 1942. Taylor, A. R.; Sharp, D. G.; Beard, D., and Beard, J. W.: Isolation and Properties of Equine Encephalomyelitis Virus (Eastern Strain), J. Infect. Dis. **72:** 31-41 (Jan.-Feb.) 1943. Glaser, R. W., and Stanley, W. M.: [illegible] e Virus and the Inclusion Bodies of Silkworm [illegible] ed. **77:** 451-466 (May) 1943. Bourdillon, J.: [illegible] and Serological Reactions of the Murine Strai [illegible] irus, Arch. Biochem. **3:** 285-297 (Feb.) 1944. Duffy, C. F., and Stanley, W. M.: Studies on the Biochemical, Biophysical, and Immunogenic Properties of Japanese B Type Encephalitis Virus and Vaccines, J. Exper. Med. **82:** 385-410 (Dec.) 1945. Knight, C. A.: The Preparation of Highly Purified PR8 Influenza Virus from Infected Mouse Lungs, ibid. **83:** 11-24 (Jan.) 1946.

[27] Doerr, R.: Die Tropismen und specifischen Lokalisationen der Virusarten, in Doerr and Hallauer,[14] p. 826.

[28] The Factors That Determine Phage Specificity, in Topley, W. W. C., and Wilson, G. S.: Principles of Bacteriology and Immunology, Baltimore, Williams & Wilkins Company, 1946, p. 338.

[29] Findalay G. M. Variation in Viruses, in Doerr and Hallauer,[14] p. 861.

[30] Rous, P.: Viruses and Tumors, in Virus Diseases,[18] p. 147.

[31] Rivers, T. M.: Pathology of Virus Diseases, in Lane Medical Lectures: Viruses and Virus Diseases, Stanford University, Calif., Stanford University Press, 1939, p. 33.

[32] Findlay, G. M.: Inclusion Bodies and Their Relationship to Viruses, in Doerr and Hallauer,[14] p. 292.

[33] Cowdry, E. V.: The Problem of Intranuclear Inclusions in Virus Diseases, Arch. Path. **18:** 527-542 (Oct.) 193

Clinically, virus diseases are about as varied as any other group of infectious diseases. There is nothing especially distinctive about many of them. While some can easily be diagnosed clinically, others definitely require laboratory help. This is particularly true of the neurotropic virus diseases, which often cannot be differentiated without such aid. Some virus infections seem to occur regularly in a clinically evident form; others may occur in a subclinical as well as a clinically apparent form in the same type of host, and still others, in an apparent form in one type of host and an inapparent one in another. It is obvious that the existence of mild or inapparent infections cannot be recognized without laboratory help.

The laboratory procedures that aid in the diagnosis of virus diseases have advanced considerably over those of even a decade ago. They are, however, for the most part highly specialized and not of the kind which can usually be rendered by the ordinary clinical laboratory. Special facilities and a suitably trained personnel are required. The procedures are varied but in general consist either of attempts to effect a direct isolation and identification of the virus or of tests that reveal whether or not viral antibodies are in the patient's blood.[34] The latter may mean tests for virus-neutralizing antibodies or wholly in vitro tests for complement-fixing or agglutinating antibodies. The first-named type is based on inactivation of virus and is therefore partly an in vivo test carried out with susceptible experimental hosts. Wholly in vitro tests, such as the complement fixation test, are much more convenient and less costly than neutralization tests, but unfortunately they are not as uniformly applicable to the diagnosis of virus diseases. A certain minimum amount of virus material must be present in the antigen that is used in such a test, and this is something not easily realized with materials representing all kinds of virus infections. However, the complement fixation test, which is the more sensitive of the two in vitro tests named, has proved its value in the diagnosis of several virus diseases.[35] Even with the more generally serviceable neutralization test it is important to bear in mind that antibodies often do not make their appearance in the patient's blood until late in the disease or after recovery. A large part of the value of these tests therefore lies in the identification of the cause of a past infection rather than that of a current illness. In any case it is important to procure a specimen of serum early during the course of a patient's illness, for comparison with later specimens.[34b]

One of the largely unsolved problems in regard to virus diseases is that of specific therapy. Any sort of direct attack is complicated by the fact that viruses are intracellular infectious agents, also by the fact that the initial invasion is likely to be widespread and to involve many susceptible cells simultaneously. Once a virus particle has found its abode within a cell, it is apparently out of the reach of potential therapeutic agents which may thereafter be brought to the environment of the cell. Unlike intercellular bacterial parasites, it is no longer exposed to whatever may be successfully conveyed to the area by the blood. Antibody molecules are too large to follow the virus into the cell, and chemical agents which might conceivably do so and there inhibit or destroy it, would seem likely to injure the cell also. The problem is therefore a difficult one. However, in spite of the theoretic difficulties presented by this intracellular relationship, hopeful chemotherapeutic results have recently been reported, following the administration of sulfonamide compounds and of penicillin, in certain individual virus and rickettsial infections, suggesting that such a direct approach may not be entirely out of the question.[36] The solution of this problem may have to be sought, however, in the form not of direct but of indirect measures—measures which may serve to make the protoplasm of the cell less suitable for the multiplication of the entrenched virus or less vulnerable to its effects. It is possible, of course, that the factors which determine the character of the protoplasmic soil and its susceptibility to a given virus are largely genetic in nature and to this extent out of artificial control, but whatever may be possible by such indirect means would seem to be in greater harmony with the normal physiology of a cell than any attempt to attack the virus directly.

Much of the control maintained over virus diseases is rooted in their immunity relationships. Because individual viruses are more or less highly dependent on suitable cell pabula, differences of the protoplasmic soil, or natural immunity, constitute one of the limiting factors. Virus infections, when they occur, moreover, are characterized by the solidity and the durability of the immunity which they leave in their wake, there being few exceptions to this rule. The immunities which follow natural infections are commonly associated with antibodies that appear in the blood. It is generally held, however, that the initial stimulus leading to their formation is not wholly responsible for the durable immunity and that this would probably not last nearly as long were it not for the fact that, following many and possibly most virus diseases, some virus persists in the recovered host and serves to keep the immunity alive.[37] This thought—that there is persistence of virus after recovery—impresses one at first as an incongruity, but the matter clears up when one recalls that viruses are ordinarily intracellular and that antibody molecules cannot reach into cells. In addition to the role played by antibodies, there may be changes induced in the protoplasm of the naturally susceptible cells (acquired tissue immunity). The evidence for this consists of the acquired resistance following certain virus infections which have been demonstrated in the absence of antibodies, either before these had an opportunity to appear, or in types of infection in which antibodies seldom are found in the blood after recovery; also, observations have been recorded showing that a high antibody level is not always associated with a high degree of resistance.[37]

---

[34] (a) Sulkin, S. E., and Harford, C. G.: The Laboratory Diagnosis of Virus Diseases, J. A. M. A. **122:** 643-648 (July 3) 1943. (b) Rivers, T. M.: Virus Diseases of the Nervous System, ibid. **132:** 427-430 (Oct. 26) 1946.

[35] Henle, W.; Henle, G.; Vincent, G., and Chambers, L. A.: Studies on Complement Fixation with the Viruses of Influenza, J. Immunol. **48:** 163-180 (March) 1944. Dulaney, A. D., and Packer, H.: Observations Upon the Specificity of the Complement-Fixation Test for Lymphogranuloma Venereum, ibid. **55:** 53-60 (Jan.) 1947. Perlowagora, A., and Hughes, T. B.: The Complement Fixation Test in Yellow Fever Epidemiology: The Use of Globulins in Immunity Surveys, ibid. **55:** 103-119 (Feb.) 1947. DeBoer, C. J., and Cox, H. R.: Specific Complement-Fixing Diagnostic Antigens for Neurotropic Virus Diseases, ibid. **55:** 193-204 (Feb.) 1947. Sulkin and Harford.[34a] Rivers.[34b]

[36] Mudd, S.: Can Chemotherapy Be Extended to Include the Intracellular Disease Agents? J. Bact. **49:** 527-537 (July) 1945.

[37] Rivers, T. M.: Immunological and Serological Phenomena of Virus Diseases, in Lane Medical Lectures: Viruses and Virus Diseases, Stanford University, Calif., Stanford University Press, 1939, p. 53.

Effective immunization seems to require the use of active virus, but strains safe enough to be used as vaccines are few. Vaccinia virus, fixed rabies virus and strain 17D yellow fever virus are three outstanding examples. But while there are few such vaccines available, it has proved possible to establish immunities of short duration against some virus diseases by the use of suspensions of inactivated viruses. Influenza and equine encephalomyelitis are among the diseases which have recently been brought into this fold. This use of inactivated viruses cannot do more than set up a certain level of antibody formation, and since the response tends to die down in the absence of a persistent stimulus, such as may result from a previous infection or may be induced by inoculation of active virus, the immunizations require repetition, possibly at intervals of six months to a year, to maintain their effectiveness.

Regarding passive immunity, it is well recognized that such antibodies as a prospective mother may happen to possess for given viruses are frequently transferred to the fetus and that they may convey to it a degree of protection which will endure for some months after its birth. Passive immunity can also be induced artificially against certain virus diseases. Indeed, it is preceding exposures to viruses that antiserums serve their greatest usefulness, for once a virus particle has found the interior of a cell it is out of reach and remains so unless its house falls. While immune serums have prophylactic value, their prophylactic use has been limited, one of the reasons being that it is often difficult to say whether immune serum is required or not. The patient may already be immune. There are virtually no simple tests for determining this. Recently evidence has been obtained that cutaneous allergy accompanies naturally acquired active immunity in cases of mumps,[38] apparently in the same way that allergy follows successful smallpox vaccination, but sufficient observations have been made on other virus diseases to indicate that cutaneous allergy is not always easily demonstrable after recovery. It is clear, of course, that whenever immune serum is used prophylactically, even in amounts which will prevent infection entirely, it will probably leave the recipient fully susceptible again after the passive protection has worn off. In the use of human measles immune serum, for example, the objective is to abort the infection but not to prevent it entirely.

Much of the control that is now exercised over virus diseases rests on the epidemiology[39] of these diseases. Much information has been gathered in these years, but much more is needed to enable physicians to deal with certain virus diseases, such as poliomyelitis. It is known that some are commonly spread by direct or indirect contact, and that some are transmitted by insects. The role of the latter in the virus diseases of animals and plants has been the subject of extensive investigations over a number of years and has assumed increasing importance with the recognition that vast silent reservoirs of inapparent infections may sometimes exist in hosts quite unrelated to the ones in which clinical manifestations are more common—reservoirs from which insect vectors can carry the infection to more susceptible hosts. The detection of these reservoirs investigators usually owe first to serologic observations made on potential hosts and later to successful attempts to isolate the virus from them. With improvements of serologic methods, such as the wider and more effective use of the complement fixation test, these reservoirs will become easier to identify.

I have merely touched here and there on the present state of knowledge of viruses. It was not possible to do more. One may be sure, however, that the science of virology has reached maturity and that it will be equal to the problems which remain.

THE PRACTITIONER AND THE VIRUS DIAGNOSTIC LABORATORY

JOSEPH E. SMADEL, M.D.
Washington, D. C.

Great advances have been made in the diagnosis, the control and the treatment of viral and rickettsial diseases in the last few years. They have resulted from intensive research carried out by laboratory workers, with the patient assistance of the practicing physician. The latter has been putting his time and effort into a long term investment which has now begun to pay dividends. My main object here is to advise him how to use his dividends wisely and how to avoid spending the principal unwittingly. I shall point out those methods which are now sufficiently well developed and standardized to be employed as routine diagnostic procedures. These every physician has a right to expect will be made available to him. In addition, I shall mention those procedures which are still so highly specialized that competent research workers are required for their satisfactory accomplishment. These research procedures are not the physician's to demand for use in routine diagnostic work. Rather they are the physician's to request only, and then in an investigation in which he cooperates with the laboratory worker. If the physician fails to employ these research procedures wisely, he is wasting the common investment in the advancement of medicine.

The isolation and the identification of viral and rickettsial agents are still research procedures. Let the physician recognize them as such and refrain from requesting them unless he is willing and able to cooperate in the investigation. In only a few instances will the isolation of the agents infectious for man provide useful information which could not have been obtained more quickly, easily and cheaply by serologic methods. It is not my purpose to present the technical details of laboratory procedures; for these, clinicians may consult their own laboratory specialists. I shall merely say that the recovery of a transmissible agent by inoculating animals with material suspected of containing it is difficult; furthermore, this is only the first step. The next step, identification of the agent, usually requires an elaborate organization and considerable time. At the Army Medical Department Research and Graduate School, which is completely equipped for such work, we consider ourselves fortunate if we are able to isolate and identify variola virus in three days and rabies virus in eight. There are more direct methods which will establish the diagnosis in less time. A minimum of ten days to three weeks is required, even under optimal conditions, for isolation and identification of such common viruses as those of lymphocytic choriomeningitis, influenza, psittacosis, St. Louis encephalitis and West-

---

39. Gordon, J. E.: Epidemiological Problems of Virus Diseases, in Virus and Rickettsial Diseases,[1] p. 3.

38. Enders, J. F.; Cohen, S., and Kane, L. W.: Immunity in Mumps: II. Development of Complement-Fixing Antibody and Dermal Hypersensitivity in Human Beings Following Mumps, J. Exper. Med. **81**: 119-135 (Jan.) 1945.

Read in the Symposium on Virus Diseases before the Section on *Pathology and Physiology* at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N.J., June 12, 1947.

From the Department of Virus and Rickettsial Diseases, *Army Medical* Department Research and Graduate School, Army Medical Center.

ern and Eastern equine encephalitis, and of the Rickettsia of epidemic and murine typhus, spotted fever and rickettsialpox.

Such rapid identification of viral and rickettsial agents requires complete facilities for performing various serologic and cross immunity tests, and these in turn require the constant maintenance of a museum of infectious agents, as well as stocks of known antigens, antiserums and immune animals. In incompletely equipped laboratories the identification of a newly isolated virus awaits the acquisition of such materials, which must be prepared locally or procured from another laboratory. Before I leave the subject of isolation, let me reiterate that the advancement of knowledge requires that this method be used in order that new agents may be discovered, but it is not necessary for the diagnosis of most of the viral and rickettsial diseases of man, for which adequate serologic procedures have been developed. If isolation studies seem to be indicated, the clinician should consult his virus specialist as to the type of material which is to be obtained and how such material is to be shipped.

Serologic Tests for the Diagnosis of Common Viral and Rickettsial Diseases of Man in North America

Group and Disease	Type of Test and Time for Collecting Specimens: Complement Fixation, Day of Bleeding		Neutralization, Day of Bleeding		Miscellaneous Agglutination, Day of Bleeding	
	Early *	Late †	Early *	Late †	Early *	Late †
spiratory group					(R.B.C. Agglutination Inhibition)	
Influenza A and B	..	..	..	..	2	8
					(Cold Hemagglutinins)	
Atypical pneumonia	..	..	..	..	7	21
Psittacosis-lymphogranuloma venereum	10	21				
ickettsial group					(Weil-Felix)	
Typhus: murine	10	21	..	..	6	12
Typhus: epidemic	10	21	..	..	6	12
Spotted fever	10	21	..		6	12
Q fever	10	21				
Rickettsialpox	10	21				
septic meningitis						
Lymphocytic choriomeningitis	10	21				
Mumps meningitis	6	21				
merican epidemic encephalitides						
St. Louis	..	..	8	21		
Western equine	..	..	6	21		
Eastern equine	..	..	6	21		

* The day given is the last that can be expected to antedate the st appearance of antibody or any sharp rise of antibody titer.

† The day given is the first day on which an appreciable amount or e maximum level of antibody may be expected to be present.

There are satisfactory diagnostic serologic tests for number of the viral and rickettsial diseases occurring n the United States, and they should be available to ll physicians. The tests are listed in the table. The materials of a few of these are not difficult to prepare; owever, most of the diagnostic antigens require special acilities for their manufacture, but, once prepared, they re stable and noninfectious. The complement-fixing nd the agglutinating antigens required for the tests isted in the table are prepared at the Army Medical Department Research and Graduate School, and a number of them are supplied to Army laboratories throughout the world. Unfortunately, in some respects we are uthorized to serve military personnel only and cannot urnish the materials to nonmilitary laboratories. It is my firm conviction that these diagnostic antigens will be made generally available within a few years, for several commercial biologic houses have evinced an interest in the manufacture of such antigens. Their efforts should be encouraged, since the wide application of these diagnostic tests must await a ready supply of the antigens.

If one may assume that noninfectious viral and rickettsial antigens can be supplied freely, then all of the diagnostic procedures listed, except the neutralization tests for the encephalitides, could be performed in any hospital laboratory in which satisfactory Wassermann tests and bacterial agglutination tests are done. I know of no laboratories other than those of the Army Medical Department School and of the National Institute of Health which regularly perform all or even the majority of the tests listed. Several of the state and municipal laboratories provide some of the diagnostic procedures, and a number of laboratories associated with teaching institutions routinely perform a few of the tests. The delay in making these methods available to physicians is dependent on the nonavailability of the antigens.

It is not too difficult for a good hospital laboratory to run a few neutralization tests, but some special equipment and training are necessary. Neutralization tests are designed to detect protective antibodies and are performed by mixing the patient's serum with diluted virus and injecting the mixture into a susceptible animal. If obvious disease develops, this indicates that the serum contains no protective substances, while if the animal remains well, the serum does possess neutralizing antibody. Neutralization tests can be relatively simple and give useful diagnostic data. Virus workers harangue about the advantages of certain modifications of the technic, but most of their arguments belong in the category of the theologic question of how many angels can stand on the point of a needle.

The neutralization technic is listed in the table for the diagnosis of only three diseases, viz., the epidemic encephalitides of North America. These infections occur only in the summer and have a limited geographic distribution. Therefore, a laboratory serving a given area would be required to do only certain of these tests and then for only part of the year. Those situated along the Atlantic seaboard and the eastern coast of the Gulf of Mexico should make routine diagnostic tests for Eastern equine encephalitis but not for Western equine encephalitis or St. Louis encephalitis. Laboratories in the area bounded roughly by the Mississippi River, the Pacific coast and the Canadian and Mexican borders should perform tests for St. Louis encephalitis and Western equine encephalitis but not for Eastern equine encephalitis. There is one area, however, where all three should be done, namely, eastern Texas, Louisiana and Mississippi, for in this section all three agents are known to occur.

The serologic methods mentioned in the table represent only a portion of those which have been employed for diagnostic work. Thus, some modification of the Hirst agglutination inhibition test is used almost exclusively in the diagnosis of influenza, but neutralization and complement fixation technics were employed satisfactorily until the simpler Hirst method became available. In the diagnosis of lymphocytic choriomeningitis the neutralization test is extremely useful, while in diagnostic studies of St. Louis and Western equine encephalitis complement fixation technics have been employed. In the diagnosis of rickettsial diseases the results obtained with rickettsial agglutination tests are as valuable as those derived from complement fixation. The technics listed in the table have been selected for clinical use because they can supply the greatest amount of useful data with the smallest expenditure of money, equipment and personnel.

The various methods employed in the diagnosis of viral and rickettsial diseases were described in detail at a recent symposium, and the descriptions will soon be published in book form;[1] this material should be consulted for details and references.

The discussion so far has centered around those things which physicians may and should ask the laboratory man to do to assist them in their practice. Now I should like to devote a little time to the things they should do in order to obtain usable information from the diagnostic tests which they request. The physician should always aim to collect serum specimens in such a manner that a rise in antibody titer can be demonstrated during convalescence. He should always get at least two samples of serum from every patient suspected of having a diagnosable viral or rickettsial disease. The detection of specific antibodies is generally worthless if a single specimen of serum is examined in a neutralization test for encephalitis, a Hirst test for influenza or a complement fixation test for the psittacosis-lymphogranuloma group, or for mumps. The serums of too many persons contain these antibodies as a result of previous infections which may or may not have been recognized. Antibodies appear more quickly in some instances than in others. The early serum should be drawn before antibody has appeared or before a sharp rise of titer has occurred. The last day on which these conditions are met is given in the column in the table titled "Day of Bleeding—Early." The earliest day on which antibody can be expected to appear in appreciable amounts or to reach its maximal level is given in the column "Day of Bleeding—Late." It is not enough that the physician take the specimens at the proper times; he must also pass on this information to the laboratory man so that the latter can examine the material intelligently.

SUMMARY

Practical methods are now available for the diagnosis of many of the viral and rickettsial diseases which physicians encounter. These methods are not now generally available but will be as soon as the necessary special antigens can be supplied. The commercial manufacture of the antigens is the next step, which must be accomplished before these technics may be used extensively for the diagnosis of disease.

---

[1] Report of Committee on Diagnostic Procedures in Virus and Rickettsial Diseases, New York, American Public Health Association, 1948, to be published.

Rheumatism.--That rheumatoid arthritis may at times be a psychosomatic disease has been suggested, but most authorities agree that psychic disturbances alone cannot cause the disease. Grief, worry or anxiety may occasionally act as precipitating agents and in some cases appear to be temporally related to fluctuations in the clinical course of rheumatoid arthritis. But while emotional upsets may act as trigger mechanisms to set off the disease process, it is probable that the body must first harbor the causative factor (infectious agent or whatever the factor is).--Boland, E. W.: *California Medicine, April 1948*

ELECTRON MICROSCOPIC STUDY OF VIRUSES

RALPH W. G. WYCKOFF, Ph.D.
Bethesda, Md.

Electron microscopes make it possible to see the elementary infectious particles of the smallest viruses and thus to study these hitherto invisible agents of disease in the same general way that bacteria have been studied with optical microscopes. In such a study the first problem that arises, and one that must be successfully met before others can properly be attacked, involves learning to recognize the individual units of virus activity among the masses of tissue and other extraneous material with which they are associated. For this a virus should be available in purified form; otherwise, it is as dangerous to ascribe virus activity to specific objects seen in the microscope as it is to pick some particular organism in a mixed bacterial culture as being responsible for a disease induced by the culture as a whole. Viruses grow only on living matter, and they must therefore usually be separated from the large masses of host cells that have nurtured them. Research directed toward finding ways to do this will continue to be essential to a developing morphology of viruses.

Electron microscopy of purified suspensions has already provided accurate descriptions of the elementary particles of a number of viruses of plants and animals. Some have characteristic appearances that allow them to be recognized in crude infected tissue. Others, differing little in shape from normal constituents of healthy cells, may always remain hard to recognize in infected material.

The largest viruses have distinctive shapes. Some, like the poxes,[1b] are bricklike. The psittacine viruses—psittacosis, lymphogranuloma, feline pneumonitis and other members of this group—are less uniform in appearance.[2] Separate elementary bodies appear as collapsed spheres, but there are also present objects containing several spheres similar to the free bodies. Some bacteriophages are spermlike,[3] with heads that show characteristic internal structures and tails the appearance of which depends on the strain (fig. 1). Virus particles of the Newcastle disease of chickens are said [4] sometimes to have sheathlike appendages and sometimes to be without them. All the very small viruses of animals and most of the viruses of plants thus far photographed have spherical or nearly spherical particles. The virus [5] of rabbit papilloma and the less stable viruses of Eastern and Western encephalomyelitis [6] are of this sort. The virus of poliomyelitis also

---

Read in the Symposium on Virus Diseases before the Section on Pathology and Physiology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N.J., June 12, 1947.

From the National Institute of Health.

[1] (*a*) Green, R. H.; *Anderson*, T. F., *and Smadel*, J E.: *J. Exper.* Med. **75:** 651, 1942. (*b*) Sharp, D. G.; Taylor, A. R.: Hook, A. E., and Beard, J. W.: Proc. Soc. Exper., Biol. & Med. **61:** 259, 1946. (*c*) Groupe, V.; Oskay, J., and Rake, G.: ibid. **63:** 477, 1946.

[2] Rake, G.; Rake, H.; Hamre, D., and Groupe, V.: Proc. Soc. Exper. Biol. & Med. **63:** 489, 1946. Davis, D. J., and Wyckoff, R. W. G.: Unpublished data.

[3] Luria, S. E.; Delbrück, M., and Anderson, T. F.: J. Bact. **46:** 57, 1943. Edwards, O. F., and Wyckoff, R. W. G.: Proc. Soc. Exper. Biol. & Med. **64:** 16, 1947. Sharp, Taylor, Hook and Beard.[1b]

[4] Bang, F. B.: Proc. Soc. Exper. Biol. & Med. **63:** 5, 1946; **64:** 135, 1947.

[5] Sharp, D. G.; *Taylor*, A. R.; *Beard*, *D.*, and *Beard*, *J*, *W.*: Proc. Soc. Exper. Biol. & Med. **50:** 205, 1942. Sharp, Taylor, Hook and Beard.[1b]

[6] Sharp, D.G.; Taylor, A.R.; Beard, D., and Beard, J.W.: Morphology of Eastern and Western Strains of Virus of Equine Encephalomyelitis, Arch. Path. 36: 167 (*Aug.*) 1943.

has been reported[7] to be spherical as seen in purified extracts of diseased cord tissue.

The particles of many viruses of animals are not uniform in size; instead their diameters seem to be distributed, often widely, about a mean value. This variation in size is clearly evident in the influenza spheres[8] of figure 2. The elementary particles of all purified viruses of plants, on the other hand, show the sort of dimensional uniformity to be expected of chemical molecules. Thus the spherical particles of the bushy stunt virus[9] have diameters that are the same within the limit of measurement (fig. 3). Rods of the tobacco mosaic virus,[10] though often of different lengths in purified preparations, have a uniform diameter.

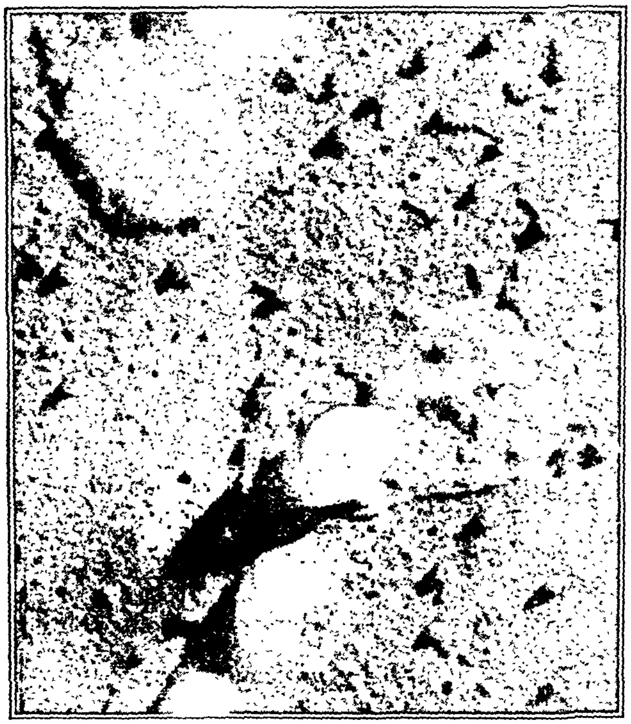


Fig. 1.—Strain T[4] bacteriophage particles among colon bacilli on the surface of an agar culture undergoing lysis. A collodion replica, chromium shadowed.

No virus of animals has yet been crystallized, and it is hard to imagine how pa[illegible]ze could arrange themselves into the [illegible], regular patterns that characterize a true crystal. Some viruses of plants, on the other hand, can easily be crystallized, and this is undoubtedly a consequence of the uniformity of their particles. Particles of uniform cross section but different lengths can pack with regularity in two but not in three dimensions. The tobacco mosaic virus forms such paracrystalline aggregates.[11] Plant viruses having spherical particles, on the other hand, form crystals in which their elementary bodies are as well arranged as are the molecules of other crystalline proteins. In favorable instances, the electron microscope reveals the exact details of this regularity[12] and thus provides a new and most direct method of determining crystal structure. Studies of these arrangements are already giving a precise insight into the basic phenomena of crystallization.

Once the morphologic characteristics of a virus are sufficiently understood, this understanding can serve as a basis for studying other of its important characteristics. Thus one can investigate by direct observation the products of reactions in which it takes part. The immune reaction that occurs between a virus and its specific antibody is undoubtedly one of the most important of these. Since individual molecules as small as those of the serum proteins can now be photographed, it has become feasible to examine this reaction down to its ultimate molecular level. This requires an antigen comparable in size with the antibody molecules; the smallest viruses approach this requirement. On the electron microscopic scale, the most striking evidence that a reaction occurs between a plant virus, for example, and its immune serum is the microagglutination[13] in which not more than a score of virus particles may be present in a single floc (fig. 4). The ability to observe a reaction involving such a fantastically small amount

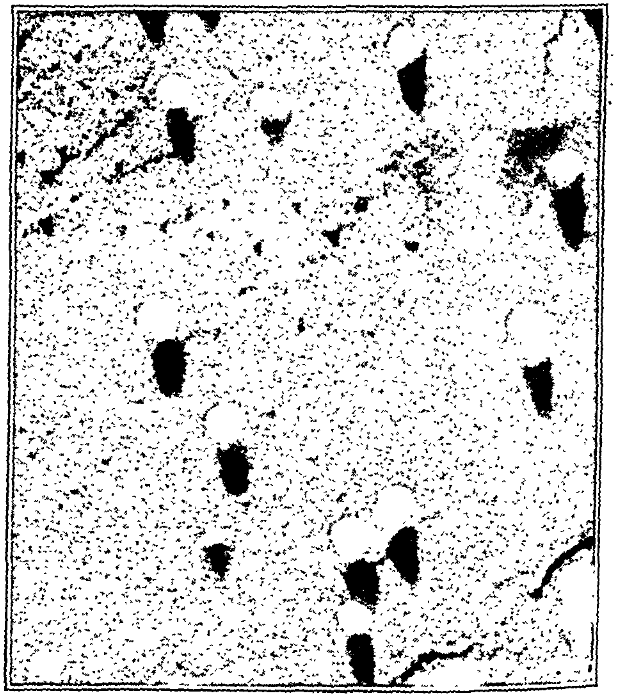


Fig. 2.—Elementary bodies in an ultracentrifugally purified suspension of type A influenza virus cultured in chick embryos. Chromium shadowed; magnification, 58,000.

---

[7] Loring, H. S.; Marton, L., and Schwerdt, C. E.: Proc. Soc. Exper. Biol. & Med. **62**: 291, 1946. Loring, H. S.: ibid. **64**: 101, 1947. Jungeblit, C. W., and Bourdillon, J.: Electronmicrography in Murine Poliomyelitis Virus Preparations, J. A. M. A. **123**: 399 (Oct. 16) 1943.

[8] Taylor, A. R.; Sharp, D. G.; Beard, D.; Beard, J. W.; McLean, I. W., Jr.; Dingle, J. H., and Feller, A. E.: J. Immunol. **47**: 261, 1943; **48**: 129 and 361, 1944; South. M. J. **37**: 313, 1944. Henle, W., and Henle, G.: Science **98**: 87, 1943. Chambers, L. A., and Henle, W.: J. Exper. Med. **77**: 251, 1943. Chambers, L. A.; Henle, W.; Lauffer, M. A., and Anderson, T. F.: ibid. **77**: 265, 1943. Stanley, W. M.: ibid. **79**: 267, 1944; **81**: 193, 1945. Williams, R. C., and Wyckoff, R. W. G.: Proc. Soc. Exper. Biol. & Med. **58**: 265, 1945. Mosley, V. M., and Wyckoff, R. W. G.: Nature, London **157**: 263, 1946.

[9] Trurnit, H., and Friedrich-Freksa, H.: Biol. Zentralbl. **60**: 546, 1940. Stanley, W. M., and Anderson, T. F.: J. Biol. Chem. **146**: 25, 1942. Price, W. C.; Williams, R. C., and Wyckoff, R. W. G.: Arch. Biochem. **9**: 175, 1946.

[10] Kausche, G.A., Pfankuch, E., and Ruska, H.: Naturwissenschaften 27: 292, 1939. Melchers, G.: Schramm. G.; Trurnit, H., and Friedrich-Freksa, H.: Biol. Zentralbl. 60: 524, 1940. Stanley, W.M., and Anderson, T.F.: J. Biol. Chem. 139: 325, 1941. Williams, R.C., and Wyckoff, R.W.G.; Science 101: 594, 1945. Wyckoff, R.W.G.: Biochem. et biophys. acta 2: 139, 1947. Sigurgeirsson, T., and Stanley, W.M.: Phytopathology 37: 26, 1947. Crook, E.M., and Sheffield, F.M.L.: Brit. J. Exper. Path. 27: 328, 1946.

[11] Bernal, J. D., and Fankuchen, I.: J. Gen. Physiol. **25**: 111, 1941. Wyckoff, R. W. G.: Biochem. et biophys. acta **1**: 139, 1947

[12] Price, W. C., and Wyckoff, R. W. G.: Nature, London **157**: 764, 1946. Markham, R.; Smith, K. M., and Wyckoff, R. W. G.: ibid. **159**: 574, 1947.

[13] Anderson, T. F., and Stanley, W. M.: J. Biol. Chem. **139**: 339, 1941. Black, L. M.; Price, W. C., and Wyckoff, R. W. G.: Proc. Soc. Exper. Biol. & Med. **61**: 9, 1946.

of virus (of the order of a millionth of a millionth of a gram) suggests that extraordinarily sensitive diagnostic methods may be developed around the use of the electron microscope. Before this can be done, however, it is necessary to have an understanding of the reaction products formed by different antigens at a full range of antigen-antibody ratios. Studies that will result in this knowledge are also providing the basis for a thorough evaluation of current theories of the nature of the immune reaction and of the way serum neutralizes and affords protection against viruses and other proteins foreign to an animal.

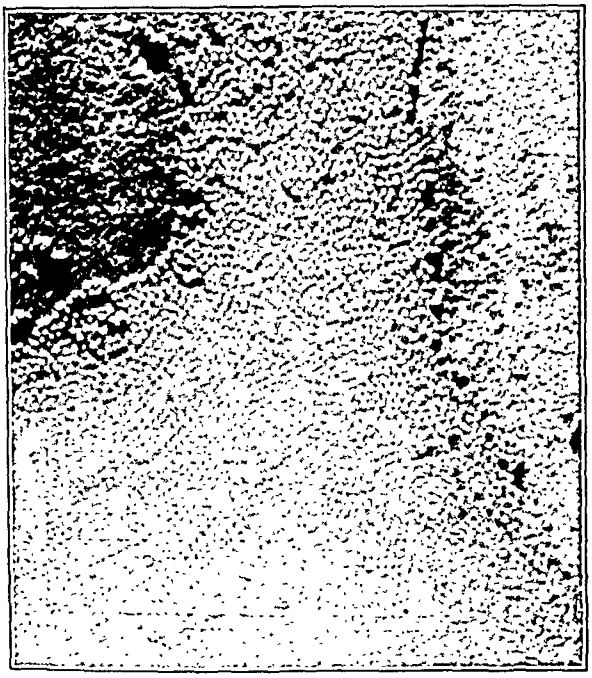


Fig. 3.—Masses of elementary particles on the edge of a desiccated droplet of a purified suspension of the bushy stunt virus. The beginnings of orderliness in particle arrangement, which results in crystal formation, are apparent. Gold shadowing; magnification, 38,000.

The ability to recognize virus particles by their characteristic sizes and shapes permits an approach to the extremely important and interesting problem of how they are produced or how they multiply. To do this it is necessary to work with viruses that are not in pure form but are within the cells which they infect. Ultimately this can be done by observing thin sections of cells in various stages of the virus infection. Sections suitable for electron microscopy must, however, be thinner than those that can be cut routinely with conventional microtomes. Special machines [14] having the high speed knives required to cut ultrathin sections are being developed, but much research in the technics of fixing and staining is needed to give them their full usefulness. A tissue can often be examined under the electron microscope without sectioning when it can be induced to grow in tissue culture as a single layer of cells.[15] This should be a fruitful way of studying the inclusion bodies produced by many viruses. The question of virus multiplication can also be approached by choosing host cells that grow singly rather than in a tissue and are small enough not to be opaque in the electron microscope. Bacteria and the bacteriophages that feed on them are probably the simplest systems of this sort. It is not hard to prepare replicas of such systems as they develop on the surface of an ordinary agar plate.[16] My associates and I have been studying the development of a number of bacteriophages in this way. The phenomena are of great complexity, depending, as they do, not merely on the organisms involved but also on their conditions of growth. Gradually, however, we are seeing the steps involved in the process by which a bacterium is converted into a mass of bacteriophage particles and are thereby gaining insight into the mechanism that brings it about.

Not all phages are sperm shaped as are those in figure 1, and they are not all found within the bodies of infected organisms. Often bacterial protoplasm will be almost completely transformed [17] into bacteriophage particles according to a pattern of practically crystalline regularity. We are gradually perceiving the implications of such observations for the nature of bacteriophage. With certain systems, lysis leaves behind such diverse particles that it is hard to be certain which of them carries the activity. This is the case for instance with Proteus bacilli, whose plaque areas are rich in multiply flagellated objects. Are these objects carriers of bacteriophage activity and are they perhaps motile "living" objects, too small to be visible in anything but the electron microscope? Information about these and many other novel questions raised by venturing into this hitherto impenetrable world of small objects is important not only to an understanding of viruses and the diseases they produce but to the most basic questions dealing with the nature of the living process itself.

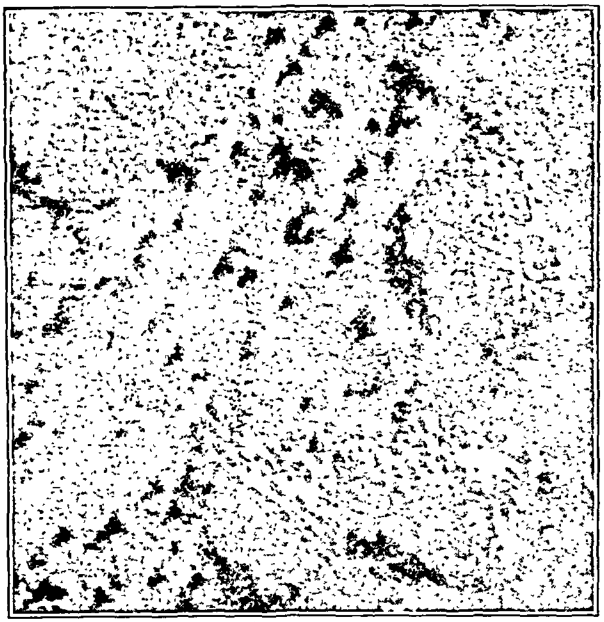


Fig. 4. Several microflocs of bushy stunt virus agglutinated specifically by antiviral rabbit serum. The disordered array of the virus particles in a floc is to be compared with their partially ordered arrangement in such a deposit of pure particles as that shown in figure 3. A gold shadowed replica; magnification, 43,000.

---

[14] O'Brien, H. C., and McKinley, G. M.: Science 98:455, 1943. Ladd, W. A., and Braendle, H. A.: Rubber Age 57:681, 1945. Gessler, A. E., and Fullam, E. F.: Am. J. Anat. 78:245, 1946.

[15] Porter, K. R.; Claude, A., and Fullam, E. F.: J. Exper. Med. 81:233, 1945.

[16] Edwards, O. F., and Wyckoff, R. W. G.: Proc. Soc. Exper. Biol. & Med. 64:16, 1947.

[17] Wyckoff, R. W. G.: Proc. Soc. Exper. Biol. & Med. 66: 42-44, 1947.

COMMON VIRUS INFECTIONS OF THE RESPIRATORY TRACT

DIAGNOSIS AND ETIOLOGY

JOHN H. DINGLE, M.D.
Cleveland

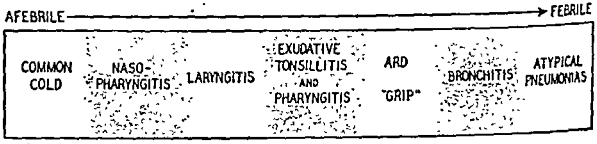
Knowledge of certain virus infections of the respiratory tract has increased greatly within the short span of the last fifteen years. During this period two distinct types of influenza virus have been isolated and characterized,[1] the large group of immunologically related viruses termed the "psittacosis-lymphogranuloma" group has been more sharply delineated,[2] and important advances have been made in the understanding of contagious diseases, such as measles [3] and mumps,[4] which are due to viruses and are spread by secretions of the respiratory tract. These well known specific infections, however, together comprise the lesser part of the problem of virus infections of the respiratory tract.

The greater part of the problem, in terms of frequency of occurrence of cases,[5] encompasses the group of common infections which vary in their clinical characteristics from the "common cold" to the "atypical pneumonia" and are referred to by a variety of additional names, including "nasopharyngitis," "laryngitis," "grip," "common respiratory disease," "catarrhal fever," "tracheitis" and "bronchitis." A great deal of time and effort have been devoted to investigations of this group of infections, but relatively little is yet known about their interrelationships and causation. While some of the infections have been found to be due to filterable agents, presumably viruses,[6] no one of the agents has been isolated and cultivated in the laboratory in a manner which permits adequate characterization.

Much has been written about diseases of the respiratory tract due to the viruses of influenza, psittacosis and other well characterized agents. It is the purpose of this paper to consider the present status of the diagnosis and etiology of those common infections whose differentiation and classification are as yet ill defined.

GENERAL CONSIDERATIONS

From the standpoint of clinical diagnosis the various common forms of mild infection of the respiratory tract present a major problem, both with respect to segregating them as a group from those due to known specific viruses and bacteria, and with regard to separating, one from another, the possible entities within the group. In part at least, this difficulty arises from the relatively limited capacity of tissues of the respiratory tract to react to the presence of any noxious agent. While single or multiple symptoms and signs may be almost pathognomonic for infection with a few known agents, the clinical picture in the majority of patients is dependent on nonspecific features, such as congestion, edema, altered secretory activity of the mucosal cells, leukocytic infiltration and, in some instances, necrosis and formation of a membrane. In addition, the constitutional reactions of fever, chilliness or rigor, aching, and malaise may have varying degrees of prominence. Thus the clinical picture depends on which of these features are predominant. More than one agent may produce the same clinical type of illness, and, in addition, a single agent, such as influenza virus A, may induce diverse clinical pictures simulating almost any of the common diseases of the respiratory tract.[7]



Spectrum of common respiratory diseases. *ARD* signifies "acute respiratory disease."

It is apparent, therefore, that the diagnosis of any of the common undifferentiated infections of the respiratory tract can now be made with certainty only by the exclusion of diseases of known cause, such as tuberculosis, diphtheria, beta hemolytic streptococcus infections, influenza and psittacosis. When such exclusion has been carried out, there remain a large number of cases which can be grouped in a "clinical spectrum" according to the predominant features of the cases (figure). Obviously, this arrangement is an artificial one based on fever and other factors contributing to severity of illness, on the anatomic location of the principal symptoms and signs and, in one instance, on a single sign—exudate—present on the tonsils or the pharyngeal wall. It is impossible to draw sharp lines between these groups, which clinically shade into one another and vary within themselves. Such a classification, however, does provide a means of selecting cases by clinical criteria for the study of causation and the separation of etiologic entities. While not all of the groups named have been investigated sufficiently to warrant more than the foregoing mention, evidence is now available which suggests that four of these categories may represent separate etiologic entities, namely, the "common cold," nonbacterial exudative pharyngitis

---

Read in the Symposium on Virus Diseases before the Section on Pathology and Physiology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N.J., June 12, 1947.

From the Departments of Preventive Medicine and Medicine, Western Reserve University School of Medicine, Cleveland, and the Commission on Acute Respiratory Diseases, Army Epidemiological Board, Office of the Surgeon General, United States Army, Washington, D. C.

[1] Smith, W.; Andrewes, C. H., and Laidlaw, P. P.: Virus Obtained from Influenza Patients, Lancet **2:** 66, 1933. Francis, T., Jr.: A New Type of Virus from Epidemic Influenza, Science **92:** 405-408 (Nov. 1) 1940. Magill, T. P.: A Virus from Cases of Influenza-like Upper Respiratory Infection, Proc. Soc. Exper. Biol. & Med. **45:** 162-164 (Oct.) 1940.

[2] Meyer, K. F., and Eddie, B.: The Knowledge of Human Virus Infections of Animal Origin, J. A. M. A. **133:** 822-828 (March 22) 1947.

[3] Rake, G.: Experimental Investigation of Measles, J. Pediat. **23:** 376 (Oct.) 1943.

[4] Enders, J. F.: Mumps: Techniques of Laboratory Diagnosis, Tests for Susceptibility, and Experiments on Specific Prophylaxis, J. Pediat. **29:** 129-142 (Aug.) 1946.

[5] Van Volkenburgh, V. A., and Frost, W. H.: Acute Minor Respiratory Diseases Prevailing in a Group of Families Residing in Baltimore, Maryland, 1928-1930; Prevalence, Distribution and Clinical Description of Observed Cases, Am. J. Hyg. **17:** 122-153 (Jan.) 1933. Reimann, H. A.: Viral Infections of Respiratory Tract: Their Treatment and Prevention, J. A. M. A. **132:** 487-493 (Nov. 2) 1946.

[6] (*a*) Kruse, W.: Die Erreger von Husten und Schnupfen, Munchen. med. Wchnschr. **61:** 1547, 1914. (*b*) Foster, G. B., Jr.: The Etiology of Common Colds, the Probable Role of a Filterable Virus as the Causative factor with Experiments on the Cultivation of a Minute Micro-Organism from the Nasal Secretion Filtrate, J. Infect. Dis. **21:** 451 (Nov.) 1917. (*c*) Dochez, A. R.; Shibley, G. S., and Mills, K. C.: Studies on the Common Cold: IV. Experimental Transmission of the Common Cold to Anthropoid Apes and Human Beings by Means of a Filterable Agent, J. Exper. Med. **52:** 701-716 (Nov.) 1930. (*d*) Long, P. H.; Doull, J. A.; Bourn, J. M., and McComb, E.: The Etiology of Acute Upper Respiratory Infection (Common Cold), ibid. **53:** 447-470 (April) 1931. (*e*) Experimental Transmission of Minor Respiratory Illness to Human Volunteers by Filter-Passing Agents: I. Demonstration of Two Types of Illness Characterized by Long and Short Incubation Periods and Different Clinical Features, Commission on Acute Respiratory Diseases, J. Clin. Investigation 26: 957-973 (Sept.) 1947. (f) II. Immunity on Reinoculation with Agents from the Two Types of Minor Respiratory Illness and from Primary Atypical Pneumonia, Commission on Acute Respiratory Disease, J. Clin. Investigation 26: 974-982 (Sept.) 1947. (g) The Present Status of the Etiology of Primary Atypical Pneumonia, Commission on Acute Respiratory Disease, Bull. New York Acad. Med. 21: 235-262 (May) 1945.

[7] (*a*) Hare, R.; Hamilton, J., and Feasby, W. R.: Influenza and Similar Respiratory Infections in a Military Camp Over a Period of Three Years, Canad. J. Pub. Health **34:** 453-464 (Oct.) 1943. (*b*) Stuart-Harris, C. H.: Influenza Epidemics and the Influenza Viruses, Brit. M. J. **1:** 209 (Feb. 17) 1945.

and tonsillitis, "acute respiratory disease" (*ARD*) and primary atypical pneumonia.

"COMMON COLD"

The "common cold" is usually defined as a mild, self-limited, afebrile respiratory illness, characterized by catarrhal inflammation of the mucous membranes of the nose, the sinuses and contiguous structures of the upper respiratory passages. The prominent features diagnostically are coryza, lacrimation, a dry and scratchy throat, an irritative cough, swollen and congested nasal mucous membranes and a normal leukocyte count. But considerable clinical variations are seen in "colds" as they occur in different persons and in the same person at different times. Some appear to be localized in the nose and the sinuses, or the throat; others, regardless of the area of initial involvement, spread to affect almost the entire respiratory tract. Some are mild, without systemic reactions; others are more severe, with associated fever, chilliness, malaise and other constitutional symptoms. Clinically, then, the diagnosis of "common cold" encompasses. illnesses which may represent variations of a single disease entity or which may be due to multiple agents.

The investigations of Kruse, Foster, Dochez, Long and their respective co-workers [6a-d] demonstrated that coryzal types of illness with a short period of incubation could be transmitted to well human beings and chimpanzees by inoculation of bacteria-free washings of the respiratory tracts of patients with "colds." Recent investigations of the Commission on Acute Respiratory Diseases [6e, f] have confirmed and extended these studies. Mild, afebrile coryzal infections of the upper respiratory tract were induced in volunteers by inoculation of bacteria-free filtrates of throat washings from each of two donor subjects. One of these donors experienced a moderately severe illness—termed a "severe common cold"—characterized by low grade fever, sneezing, profuse coryza, productive cough and the constitutional symptoms of feverishness, headache, malaise and anorexia. The nasal mucous membranes were injected and edematous, and there was mild hypertrophy of the pharyngeal lymphoid follicles. No abnormal signs were present in the chest. The lungs and the sinuses appeared to be normal on roentgenographic examination. Leukocyte counts were 11,800 and 9,700 on the second and the fifth day, respectively. Cultures of pharyngeal material and sputum revealed no significant pathogenic bacteria. The duration of illness was sixteen days. The other donor suffered a mild illness, without fever, but with dryness and irritation of the throat, nasal obstruction and discharge, sneezing, hoarseness and a dry cough. Physical examination revealed only congestion and edema of the nasal mucous membranes. Roentgenographic examination of the lungs and the sinuses, and other laboratory studies revealed no abnormalities. The illness lasted approximately five days and was termed a "common cold."

Mild, afebrile illnesses, characterized principally by sneezing, coryza and nasal obstruction, were produced in approximately two thirds of each group of volunteers inoculated with filtered washings from these two donors. Symptoms developed within twenty-four to forty-eight hours after administration of the inoculums. Physical examination revealed injection and swelling of the nasal mucous membranes, associated with nasal discharge. Despite the differing clinical characteristics of the illnesses in the two donors, there were no recognizable differences in the infections induced by the respective inoculums. Repeated cultures of material taken from the throats of the recipients before and after inoculations showed no unusual changes in the character of the bacterial flora. The duration of the illnesses was approximately seven to ten days in each group.

As a control, each of a group of 9 men was inoculated with an autogenous washing, similarly collected and filtered. In none of these men did any symptoms or signs of infection develop during the following thirty days. It was therefore concluded that the procedure of inoculation was not in itself responsible for the results obtained.

In an attempt to define further the nature of the infections induced by the "common cold" inoculums, certain of the volunteers were reinoculated with the same or with homologous filtrate after an interval of approximately three weeks. Coryzal illnesses again developed within twenty-four to forty-eight hours, indicating the absence of active immunity under these conditions of exposure. A lack of heterologous immunity also was shown by the occurrence of illnesses following subsequent inoculations made in these men at successive intervals with two heterologous washings obtained in cases of "acute respiratory disease" and primary atypical pneumonia.

It would therefore appear that coryzal illnesses resembling the "common cold" and having an incubation period of one to two days can be transmitted to human subjects by the administration of filtered secretions of the respiratory tracts of patients whose clinical illnesses differ at least in severity, if not in other respects. Presumably the causative agents are viruses. Further investigations are necessary to determine whether or not single or multiple agents are involved, to evaluate more fully the apparent lack of active immunity and to develop specific diagnostic tests.

NONBACTERIAL EXUDATIVE TONSILLITIS AND PHARYNGITIS

The occurrence of cases of nonbacterial exudative tonsillitis and pharyngitis has been observed by a number of investigators,[8] particularly in geographic areas having a relatively low incidence of beta hemolytic streptococcus infections. In certain studies [8c-f] the frequency of occurrence of respiratory illnesses associated with pharyngeal or tonsillar exudate not attributable to bacteria has been three times as great as that of illnesses due to streptococci or other bacteria.

Nonbacterial exudative tonsillitis and pharyngitis is generally a mild disease of short duration. The onset is ordinarily gradual, and the early complaints of the majority of patients are those of feverishness, headache and anorexia. Symptoms of sore throat, hoarseness and cough, often productive, are noted by

---

[8] (*a*) Stuart-Harris, C. H.; Andrewes, S. H.; Smith, W.; Chalmers, D. K. M.; Cowen, E. G. H., and Hughes, D. L.: A Study of Epidemic Influenza, with Special Reference to the 1936-1937 Epidemic, Medical Research Council, London, His Majesty's Stationery Office, 1938. (*b*) Francis, T., Jr.: Epidemic Influenza: Studies in Clinical Epidemiology, Ann. Int. Med. **13**: 915-922 (Dec.) 1939. (*c*) Endemic Exudative Pharyngitis and Tonsillitis: Etiology and Clinical Characteristics, Commission on Acute Respiratory Diseases, J. A. M. A. **125**: 1163-1169 (Aug. 26) 1944. (*d*) Role of β-Hemolytic Streptococci in Common Respiratory Disease, Commission on Acute Respiratory Diseases, Am. J. Pub. Health **35**: 675-682 (July) 1945. (*e*) Keith, J. D., and Carpenter, J.: The Diagnosis of Haemolytic Streptococcal Infection in Acute Nasopharyngitis, Canad. J. Pub. Health **37**: 127-139 (April) 1946. (*f*) Exudative Tonsillitis and Pharyngitis of Unknown Cause, Commission on Acute Respiratory Diseases, J. A. M. A. **133**: 588-593 (March 1) 1947.

75 per cent or more of the patients and tend to reach great prevalence by the third or fourth day of illness. Nasal symptoms are not prominent. On physical examination the mucous membranes of palate, pharyngeal wall and tonsils show varying degrees of injection, which usually is not severe. The exudate is ordinarily small in amount and appears as gray or yellow individual spots which are pinhead in size. Larger patches of exudate may develop, but rarely do they become confluent. Often the exudate forms over swollen lymphoid follicles on the pharyngeal wall. Cervical lymphadenopathy may be present in approximately one fourth of the cases. Involvement of the lungs occasionally occurs.[9] In approximately two thirds of the cases the total leukocyte counts are below 10,000 and the differential formulas are normal. Bacteriologic and serologic examinations give no evidence of beta hemolytic streptococcus infection. The average peak of temperature is between 101 and 102 F, and the fever ordinarily declines by lysis. The duration of illness is approximately five days, and convalescence is usually uneventful.

The cause of this syndrome has not been determined, nor have direct attempts been made to transmit the infection in man. It is worth mention, however, that in the experimental transmission of primary atypical pneumonia and minor respiratory illness to human volunteers, pharyngeal or tonsillar exudate of minimal degree was present in 2 cases of pneumonia and in 2 cases of minor illness.[10] Whether a single agent or more than one agent was active in these cases cannot be determined, however, because the particular inoculum given these persons was not filtered and consisted of specimens pooled from several donors. At the present time the disease can be diagnosed only after the exclusion, by cultural and serologic methods, of the common bacterial infections. While it is recognized that exudate is not necessarily pathognomic of a specific infection, a brief description of the syndrome of nonbacterial exudative tonsillitis and pharyngitis has been presented here because this condition may represent an etiologic entity among the common virus infections of the respiratory tract.

"UNDIFFERENTIATED ACUTE RESPIRATORY DISEASE"

It has long been common knowledge in military circles that recruits are highly susceptible to disease of the respiratory tract during their first few weeks of training. Experiences of the past war have confirmed this observation [11] and, in addition, have shown that the bulk of those illnesses which require hospitalization appear to represent an epidemiologic and clinical entity which for lack of a better term has been called "undifferentiated acute respiratory disease" by the Commission on Acute Respiratory Diseases.[11b] Epidemiologically this type of illness has shown a constant pattern of behavior during three years of observations. Epidemics have occurred in recruits with regularity during the winter months.[11b] Clinically the diagnosis has been made by the exclusion of bacterial infections, influenza A and B, exudative lesions of pharynx or tonsils, and pneumonia. While this syndrome has been recognized in military populations, there is no reason to believe that it does not also occur in civilians.[8a,b]

The clinical picture of "undifferentiated acute respiratory disease," as seen in hospitalized recruits is that of a mild respiratory illness of gradual onset. The most frequent complaints are those of feverishness, chilliness and headache. Symptoms of malaise, anorexia and nasal involvement occur in approximately half of the patients. Sore throat is common but is mild in degree in comparison with that encountered in patients having exudate in the throat. Minimal hoarseness and cough are common, although fewer than half of the patients have a productive cough or pain in the chest. On physical examination the patients rarely appear to be severely or even moderately ill. Physical signs are remarkably few and are usually noted in less than half of the patients. Nasal obstruction, mild injection of pharynx and palate, and lymphoid hyperplasia on the pharyngeal wall are most frequently found. Edema of the mucous membranes, cervical adenopathy and thoracic rales are present in approximately 10 per cent of the patients. The febrile course is short, from two to four days, and the average maximum temperature is about 101 F. Constitutional symptoms subside with defervescence, but symptoms referable to the respiratory tract, when present, tend to persist for one or two weeks. Leukocyte counts are usually within normal limits, and cultures of the throat reveal only normal bacterial flora.

It therefore appears that the syndrome of "undifferentiated acute respiratory disease" may be a clinical entity of nonbacterial origin, which differs from the "common cold" or acute coryza. Attempts to isolate the causative agent in animals have been unsuccessful. Mild respiratory illnesses have been transmitted to human volunteers, however, by means of filtered throat washings from a representative donor.[6e,f] Fourteen of 19 men inoculated became ill, and in 10 of the 14 patients symptoms first appeared on the fifth or sixth day after inoculation. While the clinical pattern was somewhat variable, the initial complaints were usually those of dryness or soreness of the throat which developed gradually during the course of twenty-four or forty-eight hours. Constitutional symptoms were minimal or absent; nasal symptoms were of minimal intensity and not associated with coryza. Mild inflammation of palate and pharynx and lymphoid hyperplasia were the only noteworthy signs on physical examination. The course of illness in general was mild and afebrile, and the duration of symptoms varied from four to twelve days. Laboratory studies yielded normal results.

Reinoculation of 6 of these men with filtered washings from the same donor produced no illness. It thus appeared that "undifferentiated acute respiratory disease," in contrast with the "common cold," was followed by homologous active immunity. Successive inoculations of these men, at later periods, with filtrates of throat washings from the patient with "severe common cold" and from a patient with primary atypical pneumonia, however, failed to demonstrate heterologous immunity to the agents producing the latter two types of respiratory disease.

This study in human volunteers indicates that a mild disease of the respiratory tract characterized by an incubation period of five to six days and predominance of pharyngeal symptoms and signs can be transmitted in man. The disease not only has a longer period of incubation than the "common cold" but also appears to be immunologically distinct. The causative agent is filterable and is presumed to be a virus. The evidence now available suggests that this experimentally induced illness is the same as the "undifferentiated acute respiratory disease" of recruits, but final acceptance of this relationship must await isolation of the virus and the development of specific serologic tests for confirmation of the diagnosis.

---

[9] Association of Acute Pulmonary Lesions with Infections of the Throat, Commission on Acute Respiratory Diseases, Ann. Int. Med. **25**: 475-487 (Sept.) 1946.

[10] The Transmission of Primary Atypical Pneumonia to Human Volunteers, Commission on Acute Respiratory Diseases, Bull. Johns Hopkins Hosp. **79**: 97-167 (Aug.) 1946.

[11] (*a*) Krueger, A. P., and others: The Diagnosis of Influenza and Acute Catarrhal Fever, U. S. Nav. M. Bull. **42**: 27-33 (Jan.) 1944. (*b*) Acute Respiratory Disease Among New Recruits, Commission on Acute Respiratory Diseases, Am. J. Pub. Health **36**: 439-450 (May) 1946. (*c*) Clinical Pattern of Undifferentiated and Other Acute Respiratory Diseases in Army Recruits, Commission on Acuto Respiratory Diseases, Medicine 26: 441-464 (Dec.) 1947. (*d*) Hare and others.[7a]

PRIMARY ATYPICAL PNEUMONIA

Within the past ten years primary atypical pneumonia has become the commonest form of pneumonia, in terms of frequency of occurrence, and has been the subject of numerous reports and reviews.[12] Only limited consideration, therefore, will be given here to its diagnosis and etiology.

Primary atypical pneumonia is an acute disease of the respiratory tract or a syndrome characterized chiefly by gradual onset, benign course and diffuse or patchy pulmonary infiltration demonstrable by roentgenogram. In some patients the constitutional symptoms of headache, feverishness, chilliness, malaise and fatigue are prominent in the early stages of illness and gradually increase in severity. In others, the illness begins as a localized infection of the respiratory tract, as indicated by dryness and soreness of the throat and by cough, and constitutional symptoms develop either simultaneously or after several days of illness. Coryza may be noted in about one third of the cases. As the disease progresses, the cough ordinarily becomes productive of greenish yellow mucopurulent sputum. Rarely is the sputum intimately mixed with blood. Substernal pain of a dull character commonly accompanies the cough. Physical examination early in the illness usually reveals little beyond mild infection of the pharynx. Later, however, medium fine, sticky rales and coarse rales are characteristically heard over the involved area of the lungs. The classic signs of consolidation—dulness, increased tactile fremitus and altered breath and voice sounds—are rarely observed.

Roentgenographic examination frequently provides the first evidence of pulmonary involvement. The infiltration is usually light and patchy in character and peribronchial in distribution, compatible with the pathologic changes of interstitial pneumonia, lobular atelectasis and necrotizing bronchiolitis. The process may begin at the hilus or in the parenchyma of the lung. The lower lobes are most frequently involved, but any portion of the lung may be affected. In general, diffuse involvement, particularly of the upper lobes, is found in the more severely ill patients.

The usual clinical laboratory examinations yield results which are within normal limits. The total leukocyte count is ordinarily less than 10,000, and the differential formula is normal. Urinary changes, if present, are those compatible with any febrile illness. Cultures of the sputum and of the throat show the normal occurrence and distribution of the bacterial flora of the respiratory tract.

The course of the average illness is benign and of approximately five to seven days' duration. Complications are infrequent, and the prognosis is excellent, despite the lack of specific therapy.

Thus, the characteristics of primary atypical pneumonia are such that a definite diagnosis may at times be extremely difficult if not impossible to establish on the clinical features alone. It may be necessary to exclude, by the appropriate diagnostic procedures, a number of diseases of known cause which may present essentially the same syndrome, such as tuberculosis, tularemia, bacterial pneumonia, coccidioidomycosis, Q fever, psittacosis and influenza.

While the diagnosis of primary atypical pneumonia is still one of exclusion, two laboratory tests are of some help. Both of these tests are agglutination reactions in which acute and convalescent phase specimens of the patient's serum should be examined in order to demonstrate a rise in antibody titer. The first or "cold hemagglutination" test[13] utilizes group O human red blood cells as antigen, and the reaction occurs only at a cold (usually icebox) temperature. On warming to 37 C. the hemagglutinin disappears. The second test is the agglutination of Streptococcus MG[14] and is carried out in essentially the same fashion as other bacterial agglutination tests. The proportion of patients whose serums show significant increases in titer for one or the other of these agglutinating antibodies or for both has varied in the several reported series of cases, but, in general, approximately 50 per cent of the patients show development of the antibodies.[12e] The two reactions appear to be directly correlated with severity of illness and extent of pulmonary involvement. It should be emphasized that each test provides only a restrospective confirmation of the diagnosis of primary atypical pneumonia, since the antibodies do not develop until the second or third week of illness. Moreover, failure to demonstrate the antibodies does not exclude the diagnosis.

The causation of primary atypical pneumonia was extensively investigated in a number of laboratories during the war. Attempts to establish in animals an infection which could be related immunologically to the human disease have for the most part been unsuccessful.[15] Eaton and his co-workers,[16] however, have reported that pulmonary lesions were produced in cotton rats and hamsters by intranasal administration of bacteria-free suspensions prepared from chick embryos previously inoculated with specimens from patients with primary atypical pneumonia. That the agent is neutralized by convalescent serums has been reported in approximately 60 per cent of cases of primary atypical pneumonia and 20 per cent of cases of the undifferentiated infection of the upper respiratory tract.[16b]

---

[12] (a) Dingle, J. H., and Finland, M.: Virus Pneumonias: II. Primary Atypical Pneumonias of Unknown Etiology, New England J. Med. **227**: 378-385 (Sept. 3) 1942. (b) Reimann, H. A.: Viral Pneumonias, Bull. New York Acad. Med. **19**: 177-182 (March) 1943. (c) MacLeod, C. M.: Primary Atypical Pneumonia, M. Clin. North America **27**: 670-686 (May) 1943. (d) Primary Atypical Pneumonia, Commission on Acute Respiratory Diseases, Am. J. Pub. Health **34**: 347-357 (April) 1944. (e) Horsfall, F. L., Jr.: Primary Atypical Pneumonia, New York State J. Med. **46**: 1810-1814 (Aug. 15) 1946.

[13] Peterson, O. L.; Ham, T. H., and Finland, M.: Cold Agglutinins (Autohemagglutinins) in Primary Atypical Pneumonias, Science **97**: 167 (Feb. 12) 1943. Turner, J. C.: Development of Cold Agglutinins in Atypical Pneumonia, Nature, London **151**: 419-420 (April 10) 1943.

[14] Thomas, L.; Mirick, G. S.; Curnen, E. C.; Ziegler, J. E., Jr., and Horsfall, F. L., Jr.: Serological Reactions with an Indifferent Streptococcus in Primary Atypical Pneumonia, Science **98**: 566-568 (Dec. 24) 1943. Thomas, L.; Mirick, G. S.; Curnen, E. C.; Ziegler, J. E., Jr., and Horsfall, F. L., Jr.: Studies on Primary Atypical Pneumonia: II. *Observations Concerning the Relationship of a Non-Hemolytic Streptococcus to the Disease*, J. Clin. Investigation **24**: 227-240 (March) 1945.

[15] Commission on Acute Respiratory Diseases.[6g] Horsfall.[12e]

[16] (a) Eaton, M. D.; Meiklejohn, G., and van Herick, W.: Studies on the Etiology of Primary Atypical Pneumonia: A Filterable Agent Transmissible to Cotton Rats, Hamsters, and Chick Embryos, J. Exper. Med. **79**: 649-668 (June) 1944. (b) Eaton, M. D., and van Herick, W.: Serological and Epidemiological Studies on Primary Atypical Pneumonia and Related Acute Upper Respiratory Disease, Am. J. Hyg. **45**: 82-95 (Jan.) 1947.

Studies of the Commission on Acute Respiratory Diseases[10] have demonstrated that primary atypical pneumonia can be transmitted to and passed in human volunteers by means of bacteria-free filtrates of sputum and throat washings. In approximately one fourth of the volunteers respiratory illnesses developed, with pulmonary infiltration being demonstrated roentgenographically. Clinically the experimentally induced infections resembled the naturally acquired disease. The average period of incubation was ten to twelve days. There was no evidence that bacteria played any part in initiating the infections or during the course of the disease.

The clinical and the experimental evidence thus indicate that primary atypical pneumonia is a virus infection of the respiratory tract. Further investigation is necessary, however, to determine whether or not one agent or more than one is concerned in the production of the naturally acquired disease.

CONCLUSIONS

In conclusion, the outstanding problem in the field of diseases of the respiratory tract relates to the common infections of the respiratory tract which are so frequent in occurrence and which appear to vary in type from the "common cold" at one extreme to "atypical pneumonia" at the other. These infections are thought to be caused by viruses as yet uncharacterized, but they may be segregated into a group at the present time only by the exclusion of cases due to the known bacteria and viruses: Clinical classification is unsatisfactory at best, since it is based mainly on severity, extent of involvement of the respiratory tract and prominence of localizing symptoms and signs. An attempt at differentiation, however, has been useful as a means of selecting cases for etiologic investigation. It now appears probable that three entities, termed the "common cold," "undifferentiated acute respiratory disease" and "primary atypical pneumonia," can be separated from the larger group. Each of them can be transmitted to well human beings by the inoculation of bacteria-free filtrates of secretions of the respiratory tract. The possible existence of a fourth entity, "nonbacterial exudative tonsillitis and pharyngitis," is indicated by clinical studies.

The Campaign Against Rheumatism.—In every country surveyed the same findings have been made: (1) rheumatic diseases outranked all others as a cause of chronic morbidity; (2) rheumatic diseases annually involve each country in great expense; (3) adequate facilities for the care of most rheumatic patients are nonexistent. In the United States as elsewhere the total army of rheumatic victims is relatively neglected. Compare their prospects with that of others, for example, the tuberculous: for our 680,000 tuberculous patients there are available about 100,000 free beds and $100,000,000 for care and research. But for our 6,850,000 rheumatic patients there are available only about 200 free beds and $200,000 for care and research. In other words, although there are 10 times as many rheumatic as tuberculous patients the latter have available 500 times more beds and money. Thus the tuberculous patient, happily thereby a "vanishing race," receives 5,000 times as much attention as the nonvanishing rheumatic.—Hench, P.S.: *Annals of Internal Medicine*, February, 1948.

SEARCH FOR EXTRAHUMAN SOURCES OF POLIOMYELITIS VIRUS

THOMAS FRANCIS Jr., M.D.
GORDON C. BROWN, Sc.D.
and
LAWRENCE R. PENNER, Ph.D.
Ann Arbor, Mich.

The best evidence of the transmission of the virus of poliomyelitis at the present time supports a person to person transfer. In spite of the logic of this thesis, based essentially on the well known fact that virus is present in the human oropharynx and intestinal tract for varying periods, one must not forget that the evidence was arrived at through processes of elimination rather than by scientifically proved experiments. Consequently, it is difficult, if not impossible, in determining the transmission of this disease, to rule out extrahuman factors completely, especially since epidemiologic observations have emphasized for years that outbreaks of poliomyelitis are correlated with seasonal influences, such as rainfall, temperature and prevalence of insects and animals.

In reviewing the literature on this subject one is impressed by the vast number of incriminations of various extrahuman factors, based at best on epidemiologic impressions gained through observations of limited accuracy, and also by the paucity of reports, either positive or negative, in which it is indicated that confirmation has been sought through actual investigation. Thus, the value to other investigators of the reporting of negative results is emphasized by the fact that so few reports on this subject exist.

Milk has been condemned in several epidemics, but entirely without laboratory support. Neustaedter and Thro[1] reported that poliomyelitis developed in monkeys infected with dust from a sickroom. Kling[2] and Toomey and his co-workers[3] seem to be the only ones reporting that the virus of poliomyelitis has been isolated from water. Sewage is not truly extrahuman, since it represents human excreta which may contain virus. Virus has actually been found in sewage by Paul, Trask and associates,[4] by Toomey[5] and by Kling and associates.[6] These isolations were almost invariably made from samples taken near the source of outlet and not far from hospitals containing patients with poliomyelitis. Jungeblut

---

This investigation was aided by a grant from the National Foundation for Infantile Paralysis, Inc.

From the Department of Epidemiology and Virus Laboratory, School of Public Health, University of Michigan.

Read in the Symposium on Virus Diseases before the Section on Pathology and Physiology at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N.J., June 12, 1947.

[1] Neustaedter, M., and Thro, W. C.: Experimental Poliomyelitis Produced in Monkeys from the Dust of the Sick Room: A Further Contribution, New York M. J. **94:** 613, 1911.

[2] Kling, C.: In Search of Poliomyelitis Virus in Drinking Water, Internat. Bull. Econ. M. Research & Pub. Hyg. **A40:** 161, 1939

[3] (*a*) Toomey, J. A.; Takacs, W. S., and Tischer, L. A.: Attempts to Recover Poliomyelitis Virus from Fruit, Well Water, Chicken Cords, and Dog Stools, J. Pediat. **23:** 168, 1943. (*b*) Toomey, J. A.; Takacs, W. S., and Weaver, H. M.: Isolation of Poliomyelitis Virus from Creek Water by Direct Transmission to the Cotton Rat, Am. J. Dis. Child. **70:** 293 (Nov.-Dec.) 1945.

[4] Paul, J. R.; Trask, J. D., and Culotta, C. S.: Poliomyelitis Virus in Sewage, Science **90:** 258, 1939. Paul, J. R., and Trask, J. D.: The Virus of Poliomyelitis in Stool and Sewage, J. A. M. A. **116:** 493 (Feb. 8) 1941.

[5] Toomey, J. A.: Attempts to Isolate Poliomyelitis Virus from Stools of Human Beings and Experimental Animals, Arch. Pediat. **56:** 693, 1939.

[6] Kling, C.; Olin, G.; Fahraens, J., and Norlin, G.: Sewage as a Carrier and Disseminator of Poliomyelitis Virus, Acta med. Scandinav. **112:** 217 and 250, 1942.

and associates[7] have reported that rodent-paralyzing agents were isolated from wild mice in several different areas, but considerable doubt exists as to the identity of these strains as agents associated with the human disease. Leake[8] attempted to recover the virus from stools of dogs and chickens, with negative results, as did Toomey and associates,[9a] who also failed to isolate the virus from fish.[9] That the antibodies are present in the serum of animals has been reported by Hammon,[10] Gordon,[11] Brown and Francis[12] and others, but it is significant that the serums were tested against only the mouse-adapted Lansing strain of poliomyelitis virus. The significance of these observations in terms of specific virus effect is not established.

The possibility that some insect plays a role in the transmission remains the most likely of all the extrahuman prospects. Rosenau and Brues[13] and Anderson and Frost[14] reported experimental transmission with the biting fly, Stomoxys calcitrans, but were unable to repeat their results a year later.[15] Sawyer and Herms[16] likewise were unsuccessful with this insect, as was Francis[17] with another biting fly, Lyperosia irritans. Howard and Clark[18] reported negative results of experiments with mosquitoes and lice, and Kling and Levaditi[19] found that flies and bedbugs were negative for virus. Simmons, Kelser and Cornell[20] and Cornell and Davis[21] were unable to transmit infection from monkey to monkey with the mosquitoes Aedes aegypti and Culex pipiens.

Flexner and Clark[22] and Howard and Clark[18] reported that monkey cord virus survived in the housefly, Musca domestica, for several days. Bang and Glaser[23] found that the Lansing strain of virus persisted in the housefly for two days but not in species of Lucilia, Muscina, Calliphora or Sarcophaga. The housefly yielded a strain of spontaneous mouse encephalomyelitis virus twelve days after feeding on the virus. The virus was not isolated from adults when the larvae were infected. Rendtorff and Francis[24] also reported that the Lansing strain was recovered from houseflies as long as two days after a single meal of virus but observed a marked decrease of this virus with time, indicating no multiplication of the agent. The virus was shown to be in the fly and to be excreted in the fecal and vomit spots.

Various workers have recently reported that the virus of poliomyelitis was isolated from captured wild flies—Paul and associates,[25] Toomey and co-workers,[26] Sabin and Ward[27] and Trask and associates.[28] A significant observation was reported by Ward, Melnick and Horstmann,[29] who exposed food to flies in an epidemic area and then fed it to chimpanzees. In these animals infection developed without clinical disease but with persistence of the virus in the gastrointestinal tract.[30]

In this laboratory, in the course of investigating epidemics of poliomyelitis during the past five years, attempts have been made to evaluate the significance of some of the possible extrahuman sources of virus. The efforts to be reported here represent attempts to isolate the virus from various materials, serologic studies to detect antibodies for the virus of poliomyelitis in animals and laboratory experiments with insects.

ATTEMPTS TO ISOLATE THE VIRUS

Mice.—Six pools of mice, representing 33 animals, have been tested for the presence of virus. The mice were captured in or near the homes of patients in three epidemic areas, Michigan, in 1942,[31] and Fort Worth and Texarkana, Texas, in 1943.[32] One animal appeared to be paralyzed. Nervous tissue and several inches of the lower part of the intestine were ground with alundum and filtered through Mandler candles. The bacteriologically sterile filtrates were inoculated intracerebrally in rhesus monkeys, white Swiss mice and cotton rats. No specimen produced signs of the disease.

Rats.—The nervous and intestinal tissues of 112 wild rats, rattus norvegicus, have been tested.[33] The animals were obtained from epidemic areas in rural districts of Michigan, in Texas and in Buffalo and Detroit. Mandler filtrates of 35 pools representing the total number of rats were inoculated intracerebrally in rhesus monkeys, Swiss mice and cotton rats. All specimens failed to transmit infection, with the exception of one pool of brains, cords and intestines from rats captured at the city dump in Fort Worth, Texas, in 1943.[32] A Mandler filtrate of the ground tissues from these animals produced paralysis in 1 of 2 cotton rats on the ninth day and in 1 of 6 mice on the thirtieth day. A rhesus monkey inoculated intracerebrally with the same original suspension had marked weakness of both legs and slight weakness of both arms by the ninth day. On autopsy of this animal some neuronophagia and neuronolysis was observed, but an attempt to pass the infection to a second monkey was unsuccessful. The brain and cord of the paralyzed mouse was passed to 4 cotton rats and 10 mice. Paralysis developed again in 1 cotton rat, but further passage was unsuccessful. However, the agent was passed in 9 successive mouse inoculations, inciting typical hind- or foreleg paralysis in the animals. Unfortunately, the percentage of mice in which paralysis developed never exceeded 20 to 25, making it impossible to identify the agent by means of the technic of cross immunization or cross neutralization. The strain has been preserved, and further attempts are being made.

---

[7] Jungeblut, C. W., and Dalldorf, G.: Epidemiological and Experimental Observations on the Possible Significance of Rodents in a Suburban Epidemic of Poliomyelitis, Am. J. Pub. Health **33:** 169, 1943; Epidemiological and Experimental Observations of Poliomyelitis in New York City (1943-1944), Am. J. Hyg. **43:** 49, 1946.

[8] Leake, J. P.: Experimental Poliomyelitis, Hyg. Lab. Bull., no. 111, 1918.

[9] Toomey, J. A.; Takacs, W. S., and Tischer, L. A. Attempts to Find Poliomyelitis Virus in Fish, Proc. Soc. Exper. Biol. & Med. **58:** 152, 1945.

[10] Hammon, W. McD.: Studies on Possible Mammalian, Avian and Arthropod Hosts of Poliomyelitis, J. Bact. **45:** 89, 1943.

[11] Gordon, F. B.: The Neutralization of Poliomyelitis Virus by Dog Serums, J. Infect. Dis. **76:** 198, 1945.

[12] Brown, G. C., and Francis, T., Jr.: Studies on the Relation of Wild Rats to Poliomyelitis, J. Infect. Dis., 81: 55, 1947.

[13] Rosenau, M. J.: Poliomyelitis Transmitted by the Biting Fly. Stomoxys Calcitrans, Pub. Health Rep. **27:** 1593, 1912. Rosenau, M. J., and Brues, C. T.: Some n Monkeys Concerning the Transmission the Agency of Stomoxys Calcitrans, Tr. 1: 616, 1913.

[14] Anderson, J. F., an of Poliomyelitis by Means of the Stable Fly (Stomoxys Calcitrans), Pub. Health Rep. **27:** 1733, 1912.

[15] Anderson, J. F., and Frost, W. H.: Poliomyelitis: Further Attempts to Transmit the Disease Through the Agency of the Stable Fly (Stomoxys Calcitrans), Pub. Health Rep. **38:** 833, 1913.

[16] Sawyer, W. A., and Herms, W. B.: *Attempts to Transmit Poliomyelitis* by Means of the Stable Fly (Stomoxys Calcitrans), J. A. M. A. **61:** 461 (Aug. 16) 1913.

[17] Francis, E.: An Attempt to Transmit Poliomyelitis by the Bite of Lyperosia Irritans, J. Infect. Dis. **15:** 1, 1914.

[18] Howard, C. W., and Clark, P. F.: Experiments on Insect Transmission of the Virus of Poliomyelitis, J. Exper. Med. **16:** 850, 1912.

[19] Kling, C., and Levaditi, C.: Etudes sur la poliomyelite aigue epidemique, Ann. Inst. Pasteur **27:** 718 and 839, 1913.

[20] Simmons, J. S.; Kelser, R. A., and Cornell, V. H.: Attempts to Transmit Virus of Acute Anterior Poliomyelitis Through Aedes Aegypti, Proc. Soc. Exper. Biol. & Med. **31:** 496, 1934.

[21] Cornell, V. H., and Davis, W. A.: Mosquito Transmission Experiment with Poliomyelitis Virus, Proc. Soc. Exper. Biol. & Med. **42:** 78, 1939.

[22] Flexner, S., and Clark, P. F.: Contamination of the Fly with Poliomyelitis Virus, J. A. M. A. **56:** 1717 (June 10) 1911.

[23] Bang, F. B., and Glaser, R. W.: Persistence of Poliomyelitis in Flies, Am. J. Hyg. **37:** 320, 1943.

[24] Rendtorff, R. C., and Francis, T., Jr.: Survival of Lansing Strain *of Poliomyelitis Virus in Common House Fly*, Musca Domestica L., J. Infect. Dis. **73:** 198, 1943.

[25] Paul, J. R.; Trask, J. D.; Bishop, M. B.; Melnick, J. L., and Casey, A. E.: The Detection of Poliomyelitis Virus in Flies, Science **94:** 395, 1941.

[26] Toomey, J. A.; Takacs, W. S., and Tischer, L. A.: Poliomyelitis Virus from Flies, Proc. Soc. Exper. Biol. & Med. **48:** 637, 1941.

[27] Sabin, A. B., and Ward, R.: Flies as Carriers of Poliomyelitis Virus in Urban Epidemics, Science **94:** 490, 1941. Insects and the Epidemiology of Poliomyelitis, ibid. **95:** 169, 1942.

[28] Trask, J. D.; Paul, J. R., and Melnick, J. L.: The Detection of Poliomyelitis Virus in Flies Collected During Epidemics of Poliomyelitis, J. Exper. Med. **77:** 531, 1943.

[29] Ward, R.; Melnick, J. L., and Horstmann, D M.: *Poliomyelitis* Virus in Fly Contaminated Food Collected at an Epidemic, Science **101:** 491, 1945.

[30] Since this paper was presented, Melnick and Penner (Proc. Soc. Exper. Biol. and Med. **65:** 342, 1947) have shown that a human strain of poliomyelitis virus, naturally present in stools of patients, when fed to Phormia regina, could be found, after this feeding, in the flies for two weeks and in their excreta for three weeks, whereas murine-adapted strains of poliomyelitis virus and Theiler's TO strain of spontaneous encephalomyelitis of mice disappeared after a few days.

[31] (*a*) Pearson, H. E., and Rendtorff, R. C.: Studies of the Distribution of Poliomyelitis Virus: I. In the Environment of Sporadic Cases, Am. J. Hyg. **41:** 164, 1945; (*b*) II. In a Small Town, ibid. **41:** 179, 1945.

[32] Pearson, H. E.; Brown, G. C.; Rendtorff, R. C.; Ridenour, G. M., and Francis, T., Jr.: Studies of the Distribution of Poliomyelitis Virus: III. In an Urban Area During an Epidemic, Am. J. Hyg. **41:** 188, 1945.

[33] Brown and Francis.[12] Pearson and Rendtorff.[31] Pearson and others.[32]

Muskrats.—Three muskrats inhabiting the waters of Three Rivers, Mich., during the epidemic of 1946 were trapped. The rivers in this area were excessively contaminated with fecal material since they received raw sewage from the entire town. The pooled brains and cords and individual suspensions of the intestines of these animals were inoculated intracerebrally in 2 cotton rats and 15 white mice. No signs were observed in the test animals.

Chickens.—Chicken droppings were collected in two epidemic areas of rural Michigan,[31] and in Fort Worth, Texas,[32] where chickens represented the major animal species apart from man. Four pools were rendered bacteriologically sterile and were then inoculated intracerebrally and intranasally in rhesus monkeys. All pools failed to produce signs of virus infection.

On four occasions chickens which were limping or were totally unable to walk were observed in yards of homes where poliomyelitis was occurring. Histories revealed that several other chickens had recently died after being lame for a period. The brains and spinal cords were removed aseptically, ground in a mortar and inoculated intracerebrally in white mice. In none of these mice did signs develop.

Cows.—Seven pools of cow feces, representing four epidemic areas, three in Michigan and one in Texas,[34] were processed for intracerebral and intranasal inoculation of rhesus monkeys. One of the cows had a history of recent lameness. All specimens failed to produce signs of virus infection.

Hogs.—Droppings from hogs which were maintained by households in which the disease occurred were collected on two occasions.[31a] Four pools of ether-treated feces were inoculated intracerebrally and intranasally in rhesus monkeys, with negative results.

TABLE 1.—*Attempts to Isolate Virus from Naturally Caught Flies*

Pool	Type of Fly	Flies	Source	Type of Monkey Inoculated	Route *	Result †
1	Miscellaneous	57	Ohio	Rhesus	i.p., i.n.	–
2	Miscellaneous	150	Ohio	Java	i.p., i.n.	–
3	Sarcophagidae	50	Texas	Cebus	i.c.	–
4	Calliphoridae	43	Texas	Cebus	i.c.	–
5	Musca domestica	52	Texas	Cebus	i.c.	–
6	Sarcophagidae	200	Texas	Cebus	i.c., i.n.	–
7	Sarcophagidae	125	Texas	Cebus	i.c., i.n.	–
8	Calliphoridae	57	Texas	Cebus	i.c.	–
9	Musca domestica	127	Texas	Cebus	i.c., i.n.	–
10	Call. and Mus. dom.	34	Texas	Cebus	i.c., i.n.	–
11	Sarc., Call., Mus. dom.	67	Texas	Cebus	i.c., i.n.	–
12	Sarc., Call., Mus. dom.	95	Texas	Cebus	i.c., i.n.	–
13	Sarc., Call., Mus. dom.	140	Texas	Cebus	i.c., i.n.	–
14	Sarc., Call.	210	Texas	Cebus	i.c., i.n.	–
15	Sarc., Call., Mus. dom.	223	Texas	Rhesus	i.c., i.p.	? –
16	Sarc., Call., Mus. dom.	251	Texas	Rhesus	i.c., i.p.	? –
17	Sa., Ca., M. dom., Tabanus, Stomoxys calcitrans	759	Mich.	Rhesus	i.c., i.p.	? –
18	Stomoxys calcitrans	1,000	Ohio	Rhesus	i.c., i.p.	–
19	Sa., Ca., M. dom., Fannia	1,000	Ohio	Rhesus	i.c., i.p.	–
20	Sarc., Call., Mus. dom.	345	Ark.	Rhesus	i.c., i.n.	–
21	Musca domestica	757	Ark.	Rhesus	i.c., i.p.	–
22	Calliphoridae	231	Ark.	Rhesus	i.c., i.p.	–
23	Sarcophagidae	389	Ark.	Rhesus	i.c., i.p.	–
24	Sarc., Call., M. dom., Stom.	626	Ohio	Rhesus	i.c., i.p.	–
25	Musca dom., related flies, miscellaneous	41	Mich.	Rhesus	i.c., i.p., i.n.	–
26	Phaenicia sericata	165	Mich.	Rhesus	i.c., i.p., i.n.	–
27	Phormia regina and terrae-novae	17	Tenn.	Rhesus	i.c.	–
28	Phaenicia sericata	452	Tenn.	Rhesus	i.c.	–
29	Phaenicia sericata	115	Tenn.	Rhesus Philippine	i.c. i.c.	– –
30	Phaenicia sericata	572	Tenn.	Rhesus Philippine	i.c. i.c.	– –
31	Sarcophaga spp.	23	Tenn.	Rhesus Philippine	i.c. i.c.	– +
32	Misc. spp.	41	Tenn.	Rhesus Philippine	i.c. i.c.	– –
33	Phaenicia sericata	64	Tenn.	Rhesus Philippine	i.c. i.c.	– –
34	Musca domestica	21	Tenn.	Rhesus Philippine	i.c. i.c.	– –
35	Sarcophaga spp.	30	Tenn.	Rhesus Philippine	i.c. i.c.	– –
36	Sarcophaga spp.	99	Tenn.	Rhesns Philippine	i.c. i.c.	– –
37	Phaenicia sericata	278	Tenn.	Rhesus Philippine	i.c. i.c.	– –
38	Phormia regina and terrae-novae	61	Tenn.	Rhesus Philippine	i.c. i.c.	– –

* The abbreviations are as follows: i.p., intraperitoneal; i.n., intranasal; i.c., intracerebral:

† A negative sign means that the inoculated animals showed no *evidence of virus infection; a plus sign, that definite symptoms of polio*myelitis developed after inoculation.

---

[34] Pearson and Rendtorff.[31] Pearson and others.[33]

Horse.—The stool of a horse which had been in close contact with a patient [31a] was tested for virus by intracerebral and intranasal inoculation of a rhesus monkey. No virus was detected.

Cats.—An interesting set of circumstances surrounded a group of three houses on the outskirts of Buffalo during the epidemic of 1944, where observations were being made by Dr. E. M. Bridge and Dr. E. Neter. In the three houses there occurred 1 definite case of poliomyelitis and 3 cases of minor illness which may have been abortive poliomyelitis. Two children had recently visited the homes; in one definite symptoms developed, and in the other, probably the abortive form of the disease. Of 13 cats residing in these homes, 9 had died within the past few weeks, 3 were well and 1 had flaccid paralysis of the legs. Through the cooperation and assistance of Drs. Bridge and Neter, these 4 remaining animals were killed, and the nervous tissue was removed and sent to us; it was then stored in dry ice until tested by intracerebral and intraperitoneal inoculation in a rhesus monkey. The animal remained perfectly well for the test period of thirty days.

Sewage.—Six specimens of sewage, 5 gallon (19 liter) quantities, were obtained in Fort Worth, Texas, during the epidemic of 1943.[32] A sample of raw sewage, a sample of the final effluent and 4 samples representing various areas of the town were chosen. Each sample was concentrated to a volume of approximately 1 quart (1 liter) by lowering the p_H to 4.2 and precipitating with crystalline egg albumin. The concentrates were preserved by freezing until tested. From 100 to 125 cc. of each was treated with ether to remove the bacteria and then inoculated at least twice in rhesus monkeys intraperitoneally and intranasally in 10 cc. and 2 cc quantities, respectively. The specimen from raw sewage was tested in 3 animals. All were negative for virus.

During the epidemic in Denver, 1946, six daily 1 quart samples of sewage were taken from three sources, the hospital outlet, the stream before it entered the treatment plant and the final effluent.[35] Two hundred cubic centimeters of each daily specimen from each location was used for a pool totaling 1,200 cc., which was then concentrated *in vacuo* to 40 cc. After ether treatment, each of the three pools was inoculated twice intracerebrally in 3 rhesus monkeys. All 3 pools gave negative results.

A pool of soil, totaling 80 Gm., from three truck farms irrigated by the Platte River, which contains the final effluent of the entire city of Denver, was suspended to 10 per cent in distilled water and concentrated *in vacuo*. After treatment with ether, the pool was inoculated intracerebrally in 3 rhesus monkeys, which remained well.

Since sludge from the sewage treatment plant is used extensively as fertilizer in and around Minneapolis, 2 specimens were obtained during the epidemic of 1946. A specimen of three year old sludge, which is usually used on farms, and a specimen of fresh sludge, 40 Gm. of each, were suspended in saline solution and treated with ether. Both were inoculated intracerebrally and intraperitoneally in Philippine monkeys. The animals remained well.

Water.—Nine large samples of water, usually several gallons each, were collected from lakes, ponds, rivers and city water supplies near epidemic areas in Cleveland, Akron, Ohio, Fort Worth, Texas, and several small towns of Michigan.[36] Each specimen was evaporated in sausage casings exposed to electric fans until concentrated to approximately 10 per cent of the original volume and then was inoculated intraperitoneally and intranasally in rhesus monkeys. In 2 monkeys symptoms suggesting infection developed, but the second rhesus passage was uneventful. The other inoculations produced no evidence of infection.

One 15 gallon (56 liter) specimen from the wells of the Perrysburg, Ohio, water department was collected over a twenty-four hour period during the epidemic of 1944. The specimen was concentrated *in vacuo* to a volume of 1 liter, while being maintained at a temperature of 40 F. and a p_H between 6 and 7. It was dialyzed and inoculated intracerebrally in white mice and 3 rhesus monkeys. No virus was recovered.

Milk.—Three specimens of raw milk from farms on which poliomyelitis had occurred [31a] were treated with ether and inoculated intracerebrally and intraperitoneally in rhesus monkeys. All the animals remained free of disease.

Insects.—Forty-three pools of insects, representing approximately 15,300 individual insects, trapped in areas under study,[34] have been tested in monkeys. Two pools of ants and two of cockroaches, with estimated numbers of 6,000 and 140, respectively, were obtained from each of two homes in which cases had occurred. A pool of ticks was made up of larvae, nymphs and adults numbering 150 obtained from a woody area frequented by a patient. Thirty-eight pools, representing seven epidemic areas, were made up of flies trapped in or around the residences of persons suffering with the disease. Many pools were made up of single species of flies. In some instances several kinds were included. In all cases the pools were ground in mortars with alundum, shaken with ether for several days and then, if bacteriologically sterile, inoculated intracerebrally as well as intraperitoneally or intranasally in monkeys.

Java, Capuchin, rhesus or Philippine monkeys were employed, and 10 pools were injected into both rhesus and Philippine monkeys. Table 1 demonstrates the results of these tests. It will be seen that, of all the pools of naturally caught flies, only one specimen, consisting of 23 flies from an unsanitary rural area, all in the genus Sarcophaga, was shown to contain the virus. This specimen produced symptoms of poliomyelitis in a Philippine monkey but was negative in a rhesus monkey. Two other specimens of flies caused questionable symptoms in the first animal inoculated, but the agent could not be passed to a second monkey. The results have been thought to be open to criticism in that rhesus monkeys were used for most tests, and the statement has been made that they are insusceptible to fly virus.

In the past a wide variety of flies has been incriminated in the pools which have yielded virus; the actual species involved have usually not been ascertained. Nevertheless, Musca domestica, the common house fly, has not been prominent in the collections, while the blow fly (Calliphora vomitoria) and several other species have been.

The usual assumption has been that flies acquire their contamination from human excreta, but no direct evidence that they do has been presented. A certain significance might be applicable if the species of flies

---

35. Ziutek, A. R.: Unpublished data.

36. Francis, T., Jr.; Krill, C. E.; Toomey, J. A., and Mack, W. N.: Poliomyelitis Following Tonsillectomy in Five Members of a Family, J. A. M. A. **119**: 1392 (Aug. 22) 1942. Pearson and Rendtorff.[21] Pearson and others.[22]

which habitually feed on human stools were known. Accordingly, fresh normal adult human stools were placed as bait in cone-shaped fly traps in numerous areas throughout Michigan during a period when poliomyelitis was not prevalent. The field identifications of the collections made are given in table 2.

Table 2.—*Species of Flies That Were Trapped with Human Stools as Bait*

	Number Trapped
Phaenicia sericata and a small number of Lucilia spp....	2,048
Phormia regina and Protophormia terrae-novae.........	629
Sarcophaga spp.	616
Muscina stabulans and Muscina assimilis.................	333
Caliphoro erythrocephala and Calliphora vomitoria.....	107
Cynomyopsis cadaverina	29
Musca domestica	17
Stomoxys calcitrans	7
Callitroga macellaria	6
Fannia canicularis	1
Miscellaneous identified and unidentified specimens........	856

The same results were obtained from trappings of flies in rural Tennessee during an epidemic where ample opportunity to feed on feces was provided. It was obvious that the "blow," "flesh" and "green bottle" flies, and not the house fly, were abundantly attracted to human excreta as used in our methods of collection. One should not be misled, however, into believing that the house fly is not attracted to human excrement under some circumstances. These data show that the species encountered were those which had been present in previous collections described as containing the virus, and they support the idea that the human stool is a likely source of the virus.

In order to complete the chain of evidence and prove that flies are capable of acquiring the virus from human excreta, collections were made in Ann Arbor in traps baited with fresh stool from a patient with acute poliomyelitis. The stool was proved to contain the virus by inoculation of a monkey, and flies trapped at the same time but not allowed to feed on the stool were shown to be free of the virus. After separating into species the flies which had fed on the virus-containing stool, seven pools were inoculated intracerebrally in both rhesus and Philippine monkeys and one pool in rhesus monkeys only. One specimen consisting of 183 Phaenicia sericata produced symptoms in both types of monkeys. Another pool of 7 Phormia regina and 1 Callitroga macellaria produced symptoms in a Philippine monkey but none in the rhesus. Two other pools, one containing 13 small feces-inhabiting flies of several species, including Gymnodia arcuata and Myiospila meditabunda, 1 Fannia canicularis, 3 Muscina assimilis and 3 Musca domestica, and the other containing 11 undetermined muscids, 14 Muscina assimilis and Muscina stabulans, 6 Callitroga macellaria and 2 Musca domestica, produced symptoms in rhesus but not in Philippine monkeys. It is interesting that not just one but several species of flies were capable of acquiring the virus, while the house fly was essentially uninvolved. It is also of interest that three pools of flies produced symptoms in rhesus monkeys and that two of these pools did not produce disease in Philippine monkeys. Other workers have clearly expressed the opinion that rhesus monkeys are not susceptible to infection with virus from naturally caught flies.

The evidence clearly demonstrates that the stool of a patient with poliomyelitis can serve as a source of virus for certain flies, which thus become potential vectors of the infectious agent.

Virus was not isolated from normal liver and fruit bait on which the disease-conveying flies subsequently fed, but it is felt that this step in the transmission still offers possibilities which further experimentation should clarify.

It should be added that the virus isolated from flies in this manner has been repeatedly passed in monkeys and has been identified by means of monkey neutralization tests as serologically similar to the Rockford, Ill. (1945) and Minneapolis (1946) strains. It also has a high intracutaneous pathogenicity in monkeys.

SEROLOGIC STUDIES

From time to time the serums of animals associated with the households of patients and having a history of recent illness have been tested for neutralizing antibodies to the mouse-adapted Lansing strain of poliomyelitis virus. Two cows, a rabbit, a horse and several chickens have been found entirely lacking in antibodies.

Forty-six wild rats from epidemic areas of Buffalo and Detroit whose tissues were examined for virus were first bled and their serums tested for Lansing strain neutralizing antibodies.[12] The serums of 45 of these rats showed no evidence of antibodies, but the serum of the remaining rat repeatedly neutralized the Lansing strain of virus. Two other rats were found to maintain circulating antibodies to a strain of Theiler's spontaneous mouse encephalomyelitis virus.

SUMMARY

Attempts to isolate the virus of poliomyelitis from various extrahuman sources in epidemic areas have been made by inoculation of monkeys and of cotton rats and mice.

Thirty-three wild mice, 112 wild rats, 3 muskrats, 4 cats, 1 horse, many chickens, cows and hogs, and 43 pools of insects, 38 of which were flies, representing approximately 15,300 individual specimens, have been so tested.

In addition 24 samples of sewage, 2 of sludge, 1 of soil, 10 of water and 3 of milk have been examined.

The animals, the insects and the other specimens were collected during epidemics of the disease and usually from locations in close proximity of patients.

A mouse-paralyzing agent was isolated from one pool of tissues from wild rats caught in Fort Worth, Texas, in 1943. It has not been identified.

Of 38 pools of flies, one collection of 23 Sarcophaga spp. from rural Tennessee, 1945, was shown to contain poliomyelitis virus.

In all other attempts to isolate the virus the results were negative.

The serums of 2 cows, a horse, a rabbit and 46 wild rats have been tested for neutralizing antibodies to the Lansing strain of virus. All were negative with the exception of that of a wild rat obtained from Detroit in 1944, which had definite virus-neutralizing capacity.

Fly trappings, using fresh normal adult human stool as bait, have shown that certain flies, Phaenicia, Phormia, Sarcophaga, Muscina and Calliphora, are the predominant genera attracted to human feces with the methods of collection used; the common house fly, Musca domestica, is not.

Virus from feces of a patient with poliomyelitis was actually taken up by flies and recovered by inoculation of rhesus monkeys.

ABSTRACT OF DISCUSSION

Dr. R. R. Spencer, Washington, D. C.: This meeting is a high point in the progress of knowledge of viruses. I shall limit my discussion to the possibility that viruses are related to cancer, presented by Dr. Kidd. The virus field and the cancer field are converging. It is difficult to believe that all types of cancer are due to a single invasive parasitic virus, and discussion is meaningless until more is learned about cells, which are the units of life, and by cells I mean virus particles, as well as body cells. Viruses are rather complex. Certainly, no one has yet grown the mammillary cancer virus; if there be a virus, in tissue culture or in chick embryo, although many of the parasitic viruses have been. Probably it comes down to a question of definition. If you mean by virus, external invasive parasitic organisms, I doubt that mammillary cancers are due to that kind of agent. If, on the other hand, you mean filterable intracellular components, perhaps detached genes or plasmagenes, then each type of cancer may have its own specific kind of intracellular component. There is no clearcut dichotomy anywhere in biology. In other words, there is a gradual change in structure and function all the way from the simplest forms of living things to the most complex, and one should not attempt to make clearcut definitions too quickly. One final point, cancer transplants elicit a rich blood supply and a supporting stroma, as every pathologist knows. They do not, however, elicit a nerve supply. The hyperplasia that results from infection seems to be definitely a defensive mechanism. I do not believe the hyperplasia of cancer is defensive. The body, certainly in the early stages of cancer, does not seem to recognize its presence. I like therefore to think of cancer as an "autoparasite." Regardless of all theories that Dr. Kidd mentioned as to the causation of cancer, and regardless of all the various inciting agents that are known, the end result is always the same. It is one of our own cells that has turned parasite.

Dr. James P. Leake, Washington, D. C.: With reference to Dr. Smadel's paper, I shall make a nonpathologic comment, that for one very important disease, smallpox, the key diagnosis is not in the laboratory but clinical. It must be prompt. Any case of purpura with fever should be considered smallpox as far as precautions are concerned, such as vaccination of those that are in the entourage, until another diagnosis is clear. In the second place, the dependent diagnosis should be made principally not on history, not on the character of the lesions, but on the distribution of the lesions. All of us can be mistaken at times, but it is safer to take precautions.

Dr. E. W. Schultz, Stanford University, Calif.: Little reference has been made to the limitations of specific therapy of virus diseases. It is important to remember in this connection that antibodies are much too large to enter cells and that there is little reason to expect therapeutic effects with immune serums after the invasion of susceptible cells has occurred. The same applies in general to chemotherapy. It would appear that future attempts to control these diseases will have to center largely around possible means of modifying the native susceptibility of vulnerable cells or preventing their initial invasion by the timely use of prophylactic agents. Virus diseases, more than any other group of diseases, depend on prophylactic measures for their control. Once infection has occurred the disease is largely out of control.

Dr. J. E. Smadel, Washington, D. C.: Viruses differ from one another. Nevertheless, all viruses have certain biologic properties in common, since they are obligate intracellular parasitic microbes. There is a tendency to think that the similarities in basic biologic properties extend to close similarities in physical, chemical and immunologic properties. The fallacy of this generalization has been touched on but not emphasized. The electron micrographs of Dr. Wyckoff do not bring out these differences in viruses as well as do other methods. Thus, certain of the plant viruses have a relatively simple chemical structure, being composed solely of nucleoprotein, which behaves as a single antigenic substance. On the other hand, the large virus of vaccinia contains protein, nucleoprotein, carbohydrate, lipid and minerals; in fact, it has the biochemical characteristics of bacteria or protoplasm. The complexity of this virus is further indicated by the fact that it contains at least five different antigenic structures. These viruses represent the two ends of the spectrum, agents in between show varying grades of similarity to the end viruses. I wish to reiterate the heresy which I mentioned earlier—don't ask for isolations. The Army has had greater experience in attempts at isolation of viruses than any other group in the United States. We consider it relatively unprofitable for the routine diagnosis of virus and rickettsial disease.

TRANSURETHRAL RESECTION FOR VESICAL DYSFUNCTION IN CASES OF TABES DORSALIS

JOHN L. EMMETT, M.D.
and
JOHN B. BEARE, M.D.
Rochester, Minn.

In 1941, we reported the results of a study of vesical dysfunction in cases of tabes dorsalis and analyzed the results of transurethral resection in 35 of the cases.[1] In these cases, the results of transurethral resection were very good. We recently have made a follow-up study of these 35 cases and of 44 additional cases of tabes dorsalis in which transurethral resection has been performed since Dec. 31, 1940. These two groups of cases form the basis of the present report.

In making such a study, it must be emphasized that it is impossible in every case to distinguish accurately vesical dysfunction caused by the tabetic state alone from that which results from hypertrophy of the prostate gland or other obstruction of the vesical neck in a case in which tabes dorsalis is only a coincidental finding and of no urologic importance. It is true that the extremes of these conditions are rather easily recognized, but intermediate conditions may be difficult to classify. The chief reason for this difficulty lies in the basic neuromechanics and obstructive factors involved in the disability. The neurophysiology of normal micturition has been described elsewhere,[2] and it is so well known that description here seems unnecessary. The tabetic process damages the posterior spinal ganglions, the posterior sensory roots and the posterior sensory columns of the spinal cord. This may block not only the impulses which pass through the sensory component of the simple spinal reflex arc and which control micturition (the level of which is in the sacral portion of the cord) but also may block the impulses which pass through the sensory part of the suprasegmental conditioning reflex and mediate vesical control by means of subconscious or conscious inhibitory impulses from the higher levels. With involvement of the sensory component of the lower reflex arc, it is apparent that more and stronger impulses would be necessary to incite reflex vesical contraction. This would result in progressive vesical distention, loss of tone and atony. Damage to the sensory component of the suprasegmental conditioning reflex would interfere with the stimuli which incite the proper flow of inhibitory impulses down the corticospinal tracts to supply subconscious and voluntary control of the lower reflex arc for micturition. In other words, the patient might not experience the desire to micturate until greater and greater distention of the bladder occurs, and the micturition could begin without the patient's being aware of it.

It is easy to visualize how such a lesion can give rise to urinary retention and incontinence. The bladder

---

From the Section on Urology, Mayo Clinic (Dr. Emmett) and the Mayo Foundation (Dr. Beare, Fellow in Urology).

[1] Emmett, J. L., and Beare, J. B.: Bladder Difficulties of Tabetic Patients with Special Reference to Treatment by Transurethral Resection, J. A. M. A. **117**: 1930-1934 (Dec. 6) 1941.

[2] Emmett, J. L., and Dunn, J. H.: Transurethral Resection in the Surgical Management of Cord Bladder, Surg., Gynec. & Obst. **83**: 597-612 (Nov.) 1946.

becomes increasingly stretched, loses its tone and becomes atonic. There results an imbalance between the detrusor urinae muscle and the vesical neck,[3] which results in residual urine and retention. Under such circumstances, even a normal- appearing vesical neck may be obstructive. Any obstruction of the vesical neck, even of a minimal degree, may increase the imbalance, and the fact that most patients who have tabes dorsalis are more than 40 years of age stipulates that almost all men who have this disease have some degree of prostatic hyperplasia, although it may be of mild degree.

Our experience with this problem has left us with the impression that most of the urinary incontinence in tabetic patients may be explained in two ways: (1) overflow from a distended bladder and (2) involuntary micturition caused by reflex emptying of the bladder not properly controlled by the suprasegmental conditioning reflex, the sensory components of which have been damaged. To put it simply, since the patient is not aware that micturition is about to occur, sufficient inhibitory impulses are not sent down from the conscious or subconscious level to prevent it.

It is apparent, therefore, that the over-all problem of vesical dysfunction in tabetic patients is composed of three rather ill defined parts; namely, (1) vesical dysfunction arising primarily from the neurogenic lesion caused by the tabetic state, (2) obstruction of the vesical neck in a case in which tabes dorsalis is only a coincidental finding and plays no part in the vesical dysfunction and (3) a combination of both factors. It is our feeling that most instances of vesical dysfunction belong in the last group.

In our previous article[1] on this subject, we analyzed the results in 35 cases of tabes dorsalis in which transurethral resection had been performed. It was apparent from this study that both residual urine and urinary incontinence could be eliminated in almost all cases. It was thoroughly demonstrated that prostatic operation could be done with no more concern or fear of postoperative incontinence in the tabetic patient than in the nontabetic patient. It also was observed in this series of cases that the amount of tissue removed was not great; it was less than 5 Gm. in many cases. This observation further emphasized that minimal amounts of obstruction at the vesical neck can produce vesical decompensation in the weakened tabetic bladder.

Inasmuch as minimal degrees of obstruction of the vesical neck or even a normal- appearing vesical neck can be the precipitating factor in vesical dysfunction in cases of tabes dorsalis, one might logically reason that minimal degrees of postoperative scarring or contraction of the vesical neck occurring after transurethral resection could cause sufficient obstruction to produce a recurrence of the vesical dysfunction and residual urine. In such an event, it could also be assumed that transurethral removal of the postoperative scar tissue or removal of a recurring adenoma might again yield a good result. In short, we have wondered whether any of the 35 patients who were operated on prior to Jan. 1, 1941, have had to undergo further treatment because of a recurrence of their former symptoms. To investigate this problem we have reviewed all of these cases. In all of these cases, more than six years have elapsed since transurethral resection first was performed at the Mayo Clinic. One of the patients has returned to the clinic for further treatment. Letters of inquiry were sent to all of the other patients, and thirty-one replies were received. Follow-up data, therefore, are available in 32 of the 35 cases. In 16 of the 32 cases, the patients were alive at the time of inquiry. In 9 of these 16 cases, the letters indicated that the patients did not have any symptoms referable to the urinary bladder; there was no urinary frequency or incontinence. In 6 other cases, the patients reported that their vesical function was satisfactory except for the presence of varying degrees of urinary frequency and some nocturia. All of the 15 patients felt that they were emptying their bladders completely, although some stated that the urinary stream was not so large as it had been immediately after the transurethral resection. (This would indicate that these patients have had a slight degree of postoperative contracture or scarring of the vesical neck.) In the letters of inquiry, we requested the patients to have a determination of the amount of residual urine made, if possible. All of the 6 patients who complied with this request reported that they were emptying their bladders completely.

The case in which the patient returned to the clinic because of a recurrence of his former symptoms is of sufficient interest to be presented here in abstract form, as it is illustrative of the general problem.

A man aged 42 years first came to the clinic in December 1918. His chief complaint was difficulty with his urinary bladder, which consisted of nocturnal incontinence, a diurnal urgency type of incontinence and difficulty in initiating and maintaining the urinary stream. In addition, he complained of loss of sexual power, an unsteady gait (especially at night) and weakness of his legs. He stated that he had had a penile chancre at the age of 21 years.

Examination disclosed tabes dorsalis. The Wassermann reaction on the serum and cerebrospinal fluid was positive. Romberg's sign was present. Urologic examination disclosed the presence of 400 cc. of infected residual urine. Cystoscopy revealed a large atonic bladder with little if any trabeculation. The diagnosis was tabetic cord bladder. The patient was advised to employ periodic vesical lavage.

The patient returned to the clinic twenty-one years later; that is, in June 1939. His chief reason for seeking medical aid at this time was urinary incontinence and foul-smelling urine that made it impossible for him to live in normal society. He also complained of "lightning" pains around the abdomen. Vesical lavage had produced some relief of the urinary symptoms for several years, but in the past two or three years the incontinence had become so great that he had been forced to wear a rubber urinal.

Neurologic examination revealed the same signs of tabes dorsalis that had been noted at his examination twenty-one years previously. The bladder contained 1,000 cc. of foul, infected, residual urine. Cystoscopy disclosed a large atonic bladder with minimal trabeculation. The prostatic urethra and vesical neck appeared to be relaxed, dilated and "pulled open" as a result of the vesical distention. There was adenomatous enlargement, grade 1, of all three lobes of the prostate gland. The diagnosis was tabetic cord bladder associated with minimal prostatic hyperplasia.

A transurethral resection was performed on June 30, 1939, with the Thompson cold punch resectoscope. The removal of 8 Gm. of tissue seemed to open the prostatic urethra widely. Pathologic examination of the excised tissue revealed adenofibromatous hyperplasia. The patient was able to empty his bladder completely, although it was necessary for him to use considerable abdominal straining. Several minutes were required to empty the bladder completely. The urinary incontinence was relieved entirely. Owing to the sensory involvement, he never regained the desire to micturate; he therefore was instructed to micturate every three hours. The urinary infection was eliminated and the patient was dismissed from our care.

---

[3] Emmett, J. L.: Urinary Retention from Imbalance of Detrusor and Vesical Neck: Treatment by Transurethral Resection, J. Urol. 43: 692-704 (May) 1940.

His next visit to the clinic was seven years later; that is, in June 1946, when he was 70 years of age. He stated that his urinary function had been satisfactory for about five years after the last transurethral resection. In the two years before he returned to the clinic, previous symptoms had returned gradually. He again complained of urinary incontinence and infected urine. Urologic examination revealed that his bladder contained 600 cc. of residual urine. Cystoscopy revealed a moderate degree of postoperative contracture of the vesical neck and some residual or recurrent adenomatous hyperplasia in both lateral lobes of the prostate gland, near the apex of the gland. The bladder was large and atonic.

Transurethral resection was performed on June 11, 1946. As the resection proceeded, it became apparent that there was a substantial amount of adenomatous tissue at the apex of the prostate gland. Twelve grams of tissue was removed. Examination of the excised tissue disclosed adenofibromatous hyperplasia. The result was excellent; the patient was able to empty the bladder completely with a good stream. It was still necessary for him to use abdominal straining and he was advised, as he had been after the previous operation, to empty his bladder regularly every three or four hours.

ANALYSIS OF FORTY-FOUR CASES OF TABES DORSALIS IN WHICH TRANSURETHRAL RESECTION WAS PERFORMED

We have been interested to know whether our results with transurethral resection in tabetic patients will continue to be as favorable as indicated in our previous report. Accordingly, we have made a study of 44 cases of tabes dorsalis in which transurethral resection was performed at the clinic in the years 1941 to 1945, inclusive. As mentioned in our original article, we feel that it is impossible to determine with any degree of accuracy in every case the proportion of the vesical dysfunction caused by the primary neurogenic atony and that produced by obstruction of the vesical neck. In most cases there was no question but that the tabetic condition was the predominating factor; in other cases, it seemed definite that the predominating factor was obstruction at the vesical neck. It is entirely possible that in a few cases the tabes dorsalis was only a coincidental finding and did not contribute to the vesical dysfunction. In the absence of an accurate method of distinguishing these conditions, it seems best to consider them as a single group.

Age and Sex.—Of the 44 patients, 43 were men and 1 was a woman. All except 4 were 50 or more years of age (table 1), which substantiates the thesis that most of the patients are in the age of prostatism when the vesical symptoms become sufficiently disturbing to require medical care.

TABLE 1.—*Age of Patients in Forty-Four Cases of Tabes Dorsalis in Which Transurethral Resection Was Performed*

Age, Years	Cases
40 to 49	4
50 to 59	18
60 to 69	16
70 to 79	6

Urinary Incontinence and Residual Urine.—Seventeen of the 44 patients complained of some type of "incontinence." In 6 cases, the incontinence was nocturnal only and in 1 case it was of a precipitate urgency type. In the remaining 10 cases, the urinary leakage occurred during both the day and night and varied in degree from a mild type consisting of an occasional involuntary spurt of urine to a more or less continual overflow type of dribbling from a distended bladder. In all except 1 case, the bladder contained more than 200 cc. of residual urine; in 12 of the cases, more than 300 cc. of residual urine was present. The largest amount found in any of these 17 cases was 1,200 cc. The amount of residual urine present in the entire group of 44 cases is shown in table 2.

TABLE 2.—*Amount of Residual Urine Before Transurethral Resection in Forty-Four Cases of Tabes Dorsalis*

Residual Urine, Cc.	Cases Number	Percentage
More than 500	8	18
100 to 500	22	50
Less than 100	14	32

Type of Obstruction of the Vesical Neck.—Consistent with our previous experience, the degree of obstruction at the vesical neck was not great. Contractures of the vesical neck, small adenomatous collars and a small degree of hypertrophy of the lateral and median lobes predominated. It should be pointed out that in many of the cases cystoscopy suggested that the vesical neck was relaxed and dilated and was probably not causing any obstruction. This appearance is due to the distended bladder, which has pulled open and stretched the vesical neck. (The surgeon should not let this condition deter him from performing a transurethral resection, as the results of transurethral resection in this type of case are as good as in any other.) In the majority of cases, it was necessary to remove less than 10 Gm. of tissue (table 3), while in only 9 cases was it necessary to remove more than 20 Gm. of tissue. In some cases, it was difficult to demonstrate obstruction at the vesical neck until resection actually was begun.

TABLE 3.—*Weight and Type of Tissue Removed by Transurethral Resection in Forty-Four Cases of Tabes Dorsalis*

Weight of Tissue, Gm.	Cases	Type of Tissue Adenofibromatous Hyperplasia	Carcinoma	Inflamed Smooth Muscle
0 to 3	2	1	..	1
4 to 5	5	4	..	1
6 to 10	18	17	..	1
11 to 20	10	10	..	..
21 to 50	9	7	2	..
Total	44	39	2	3

Results.—The results of transurethral resection were most satisfactory and essentially paralleled those obtained in our previous series. The results were classed as good in 39 cases and as fair in 3 cases. Two patients were unimproved. By the term "good," we mean that the patient is able to void with a good stream, can empty the bladder completely and has no urinary incontinence.

Of the 17 patients who complained of urinary incontinence prior to operation, 15 secured excellent results and complete relief of the incontinence. One patient, although able to empty his bladder completely, continued to have a moderate degree of urinary urgency while the remaining patient still complains of nocturnal enuresis and of difficulty in expelling his urine.

Reviewing the 5 cases in which the results were not entirely satisfactory, one gains the impression that further cystoscopy is indicated and that in some of the cases removal of additional tissue would improve the vesical function. In such cases, it often requires careful observation and judgment to recognize and remove minimal amounts of tissue from the vesical neck. Removal of such tissue may make the difference between an excellent and an unsatisfactory result.

TRANSURETHRAL RESECTION IN TABETIC WOMEN

In our previous study, it was pointed out that in cases of tabes dorsalis vesical dysfunction is much more common among men than women. This is no doubt explained by the fact that obstruction of the vesical neck is so much more common in men than it is in women. Nevertheless, vesical dysfunction with residual urine and urinary incontinence does occur in women. This condition can also be cared for by transurethral resection. The following case is illustrative of the condition.

A woman aged 62 years came to the clinic on Oct. 22, 1945. She complained of a girdle type of pain which encircled the left side of the thorax at the level of the angle of the scapula. The pain had been present intermittently for several years. It recently had become so severe that morphine had been necessary for relief. She also complained of having "lost control of her bladder." This had consisted chiefly of nocturnal incontinence; however, it recently had begun to be troublesome during the day. The amount of urine that was expelled in this manner was sufficient to wet her clothes.

Her past history suggested that she probably had had a chancre at the age of 19 years and that the lesion never had been treated. For many years, she had "prided herself" on the length of time she could go without voiding. More recently, she had experienced moderate difficulty in initiating the urinary stream; recently, incontinence had developed and had become annoying.

Neurologic examination revealed typical signs of tabes dorsalis. The Wassermann reaction and results of flocculation tests on the blood and cerebrospinal fluid were strongly positive, and examination of the spinal fluid revealed a paretic colloidal gold curve. The girdle pain was interpreted as being due to a typical tabetic crisis.

Urologic examination revealed 350 cc. of residual urine. Cystoscopy revealed a large atonic bladder and trabeculation, grade 1. The urethra was very short. The vesical neck did not appear to be causing a great deal of obstruction. An excretory urogram did not disclose any abnormality of the kidneys. The diagnosis was tabetic cord bladder.

Transurethral resection was performed on Nov. 26, 1945, by means of the small punch resectoscope. Fifteen pieces of tissue were removed from the entire circumference of the vesical neck. The results of the operation were excellent. When the catheter was removed, the patient was able to void well with a good stream and could empty her bladder completely. The diurnal and nocturnal incontinence were completely eliminated. On her dismissal, the patient was instructed to micturate regularly at least every three hours.

COMMENT

It is our opinion that vesical dysfunction associated with tabes dorsalis is no longer a therapeutic problem of any importance, since consistently good results may be obtained by means of transurethral resection of the vesical neck. The explanation of how transurethral resection corrects vesical dysfunction in this disease seems relatively simple, although it must be admitted that some points are more or less theoretic. The elimination of residual urine is brought about by weakening the vesical neck sufficiently to permit the weakened atonic bladder, aided by intra-abdominal and, if necessary, manual compression, to expel the urine completely. The elimination of the residual urine also relieves the incontinence in cases in which the patients are suffering from an overflow type of incontinence. The explanation of the relief of incontinence that is principally an involuntary type of micturition also seems fairly simple. The elimination of residual urine increases the reservoir capacity of the bladder. The patient is instructed to micturate regularly every three or four hours to prevent undue distention of the bladder so that the chance of involuntary micturition is minimized. He is instructed to take the time and make the effort to empty his bladder completely at each micturition. In some cases in which advanced sensory damage is present, the patients never may regain the desire to micturate. Such patients must be carefully taught to micturate at regular intervals and not to wait for the desire to micturate. Inasmuch as the bladder is emptied completely at each voiding, the urine may be kept free of infection; therefore, for all practical purposes, the vesical function may be considered normal.

One word of caution should be given. Inasmuch as small degrees of obstruction of the vesical neck can precipitate vesical dysfunction in cases of tabes dorsalis, small degrees of postoperative contracture may conceivably cause a recurrence of the obstruction. Because of this, such patients should be reexamined at yearly intervals to determine whether any residual urine is present. If it is, cystoscopic reexamination of the vesical neck should be performed and any scar tissue should be excised.

POLYMYXIN

A Note on Experimental and Clinical Investigations

EMANUEL B. SCHOENBACH, M. D., MORTON S. BRYER, M. D.,

ELEANOR A. BLISS, Sc. D., and PERRIN H. LONG, M. D.

Baltimore

In May 1947, Benedict and Langlykke[1] reported that sterile culture filtrates of Bacillus polymyxa in dilutions of 1:1,000 inhibited the growth of Brucella bronchiseptica in culture. Shortly after this report, Stansly, Shepherd and White[2] independently described the isolation of an antibiotic substance from B. polymyxa which they named "polymyxin." This antibiotic was shown by them to be effective only against gram-negative organisms in vitro, and to possess a high degree of therapeutic activity against experimental infections produced in mice by the inoculation of Klebsiella pneumoniae or Pasteurella multocida. It was also effective against experimental fowl typhoid infections in chicks. Subsequently, Stansly and Schlosser[3] established the identity of polymyxin as a new antibiotic and developed a method for its bio-assay. Not long after the two original reports on this antibiotic appeared, Ainsworth, Brown and Brownlee[4] announced that they had isolated an antibiotic, active against gram-negative organisms, from cultures of Bacillus aerosporus Greer. To this agent they gave the name

---

From the Department of Preventive Medicine, The Johns Hopkins University School of Medicine.

Presented before the Johns Hopkins Medical Society, March 8, 1948.

These investigations were supported by grants received from Abbott Laboratories, Eli Lilly and Company, Lederle Laboratories Division, Parke, Davis and Company and the Upjohn Company.

The polymyxin was furnished by the Lederle Laboratories Division, American Cyanamid Company.

[1] Benedict, R. G., and Langlykke, A. F.: J. Bact. **54**: 24 (July) 1947.

[2] Stansly, P. G.; Shepherd, R. D., and White, H. J.: Bull. Johns Hopkins Hosp. **81**: 43 (July) 1947.

[3] Stansly, P. G., and Schlosser, M. E.: J. Bact. **54**: 549 and 585 (Nov.) 1947.

[4] Ainsworth, G. C.; Brown, A. M., and Brownlee, G.: Nature, London **160**: 263 (Aug. 23) 1947.

"aerosporin." Recently, Brownlee and Bushby [5] have described in detail the bactericidal, toxicologic and pharmacologic properties, and experimental therapeutic effectiveness of aerosporin, while Swift [6] has reported that this antibotic is of some value in the treatment of whooping cough in children. Although polymyxin and aerosporin are derived from similar micro-organisms, recent comparisons of the two products suggest that they are dissimilar in chemical composition. [7]

We wish to report briefly upon the experimental and clinical observations which we have made during the past six months with polymyxin (hydrochloride). This antibiotic in vitro is most effective in an acid medium, is relatively heat stable and loses little of its activity in the presence of serum. The strains of Escherichia coli, Aerobacter aerogenes and K. pneumoniae which have been tested are susceptible to 0.3 microgram of polymyxin per cubic centimeter when an inoculum of 200,000 bacilli is used. Pseudomonas aeruginosa is slightly more resistant to this antibiotic, while the strains of P. vulgaris and N. intracellularis so far tested in vitro appear to be completely resistant. Polymyxin in its effective concentrations appears to be bactericidal in its action on susceptible micro-organisms. Like Stansly et al. [2], we have found it was impossible to produce resistant strains from susceptible organisms in vitro.

The acute toxicity of polymyxin was determined in mice by single subcutaneous injections and the LD 50 was found to be 50 to 300 mg. per kilogram. While dogs survived single intravaneous injections of 10 to 15 mg. per kilogram of body weight, single intravenous injections of 25 mg. per kilogram produced death. Dogs tolerated 5 and 10 mg. of the antibiotic per kilogram when given injections twice daily by the intramuscular route for seven days. Intrathecal injections of 1 and 5 mg. of the drug in dogs produced no untoward reactions, while 10 mg. produced transient paresis of the hind legs.

Ninety minutes after dogs had received single intramuscular doses of 5 and 10 mg. per kilogram, serum concentrations of 2.5 and 5.0 micrograms of polymyxin per cubic centimeter were recorded. Three and one-half hours after these doses, serum concentrations of 2.5 and 1.25 micrograms per cubic centimeter were noted. When dogs were given 5 and 10 mg. of the compound per kilogram twice daily for seven days, serum concentrations of 10 to 20 micrograms of polymyxin per cubic centimeter were observed. The antibiotic was not detected in the spinal fluid of dogs in which high serum concentrations of polymyxin were present. When polymyxin was administered to human beings in divided doses by the intramuscular route at intervals of three hours in amounts not to exceed a total daily dose of 3 mg. per kilogram of body weight, concentrations of 0.6 to 1.3 micrograms per cubic centimeter were noted in the serum after twenty-four hours of therapy. Detectable amounts of polymyxin began to appear in the urine twelve hours after the initiation of the dosage schedule just described. After twenty-four hours of its administration, effective bactericidal concentrations of the antibiotic were found in the urine. In 1 person, suffering from purulent meningitis and treated with polymyxin, none of the agent was detected in the spinal fluid.

As is shown in the table, single doses of 1 mg. of polymyxin per kilogram of body weight administered by the subcutaneous route protected the majority of mice which had been previously infected by the inoculation of 1,000 minimum lethal doses of either K. pneumoniae (type A) or Hemophelus influenzae (type B) by the intraperitoneal route. These results confirmed previous observations on the therapeutic effectiveness of this antibiotic in experimental gram-negative infections. [2] Comparable experimental infections treated with streptomycin in doses of 1 or 5 mg. per kilogram of body weight were used as therapeutic controls. Under the conditions of the test, polymyxin appeared to be five to ten times more effective in the control of these experimental infections than was streptomycin. Furthermore, it has been noted that while neither a bacteriostatic nor bactericidal effect could be demonstrated against Neisseria intracellularis in vitro, polymyxin had a definite curative effect in experimental meningococcic infections in mice. This paradox is being investigated.

Table 1.—*Comparison Of Streptomycin and Polymyxin*

Drug	Dose, Single (Subcutaneously) Mg./Kg.	Inoculum*	Deaths on Day Indicated						Survivals After Six Days	
			1	2	3	4	5	6	Number	Percentage Total
Control	—	K. pneumoniae† Type A	10	–	–	–	–	–	0	0.0
Streptomycin	1 5	K. pneumoniae Type A†	1 –	4 –	9 3	1 –	– –	– –	5 7	25.0 70.0
Polymyxin	1 5	K. pneumoniae Type A†	– –	– – –	1 –	2 –	– –	– –	17 20	85.0 100.0
Control	—	H. influenzae Type B‡	9	–	–	–	–	–	1	10.0
Streptomycin	1 5	H. influenzae Type B‡	16 2	– –	– –	– –	– –	– 1	4 7	20.0 70.0
Polymyxin	1 5	H. influenzae Type B‡	– –	1 –	– –	– –	– –	– –	19 20	95.0 100.0

*In all instances 1,000 lethal doses were given.

†K. pneumoniae, type A, was injected intraperitoneally.

‡H. influenzae, type B, was injected intraperitoneally in 5 per cent hog gastric mucin.

Polymyxin in total daily dosages of up to 5 mg. per kilogram of body weight, given in a special buffer solution (pH 7.4) at intervals of three hours has been used to treat patients seriously ill with infections due to Pseudomonas aeruginosa, K. pneumoniae, Hemophilus pertussis, and Brucella abortus. To date, the results have been such as to demonstrate clearly that polymyxin has a therapeutic effect against infections produced by these organisms in human beings. Too few patients have been treated to make any definite statements in regard to the clinical toxicity of polymyxin. One instance of fever, possibly due to the drug, has been noted. Other toxic reactions undoubtedly will occur.

CONCLUSION

Polymyxin is a new antibiotic uniquely and highly active in vitro against certain varieties of gram-negative micro-organisms. Its acute toxicity in experimental animals is considerably greater than that of penicillin or streptomycin. After intramuscular injection of the antibiotic, it promptly enters the blood stream, but it does not pass the blood-brain barrier. It is excreted slowly in the urine.

In certain experimental infections produced by the inoculation of gram-negative organisms in mice, polymyxin appears to be definitely more effective than streptomycin. The results following its use in certain types of clinical infections produced by gram-negative bacilli are interesting. However, careful clinical trials of this compound in selected and suitable types of infections must be made before the therapeutic effects of polymyxin can be evaluated.

---

[5] Brownlee, G., and Bushby, S. R. M.: Lancet 1948 1: 127 (Jan. 24) 1948.
[6] Swift, N. P.: Lancet 1: 133 (Jan. 24) 1948.
[7] Subbarow, Y.: Personal communications to the authors.

Clinical Notes, Suggestions and New Instruments

DEVELOPMENT OF APLASTIC ANEMIA DURING THE USE OF STREPTOMYCIN

Report of Two Cases

CAPTAIN V. F. DEYKE, and
LIEUTENANT COLONEL J. B. WALLACE,
Medical Corps, United States Army

Case 1.—A white man aged 46 with moderately advanced pulmonary tuberculosis was admitted to Fitzsimons General Hospital in January 1947. On April 1 the patient was started on 2 Gm. of streptomycin daily, intramuscularly in five equally divided doses. There was no history of blood disorder or any evidence of such on periodic examinations until June 19, at which time the erythrocyte count was 3,100,000, the leukocyte count was 3,500, neutrophils 54 per cent and lymphocytes 46 per cent. Streptomycin was discontinued on that date. On June 29 the leukocyte count was 2,000 with 91 per cent lymphocytes. The platelets were markedly decreased. On that date, the usual vigorous measures were begun to combat aplastic anemia. In spite of this the blood picture continued to deteriorate until July 7, when the erythrocyte count was 2,800,000. The leukocytes measured 800, of which 2 per cent were neutrophils and 98 per cent lymphocytes. No platelets were seen. The patient died July 8, nineteen days later. Autopsy revealed pronounced hypoplasia of bone marrow. The proximal end of the femur was filled with a soft yellow fatty material. A similar change was noted in the rib bone marrow. Microscopically the marrow was predominantly replaced by fat, with scattered occasional islands of hemopoietic tissue.

Case 2.—A white man aged 27 with active moderately advanced tuberculosis was admitted to the hospital Feb. 5, 1947 with a history suggesting onset of illness two months previously. On March 17 he was started on 2 Gm. of streptomycin daily administered intramuscularly in five equally divided doses. Periodic blood counts revealed no abnormality until June 20, when a depression of all blood elements was noted. Streptomycin therapy was discontinued immediately, and the usual vigorous efforts were made to combat aplastic anemia. The blood picture has deteriorated to this writing (July 17) when the red blood cell count is 1,400,000, the white blood cell count 1,100, neutrophils 1 per cent and lymphocytes 99 per cent; no platelets are seen. Repeated sternal marrow examinations reveal a decided diminution in the number of the young red and granulocytic series. Recovery is doubtful.

COMMENT

Some 400 patients have been, or are being, treated with streptomycin to date at this hospital. In 2 patients from this number a serious depression of blood elements developed during streptomycin therapy, beginning on the seventy-ninth and ninety-fifth days of treatment. Neither patient appeared to have disseminated hematogenous tuberculosis. One patient had received an occasional "seconal sodium" tablet and the other patient had received some diphenhydramine hydrochloride. It is our opinion that neither of these drugs was the causative agent.

Review of the literature indicates that of some 900 patients, other than the series at the Fitzsimons General Hospital, treated with streptomycin, 8 have shown a relatively mild leukopenia, 6 of whom had a relative neutropenia. These were self limiting. There is reported 1 case of agranulocytosis, but no mention is made as to its severity and outcome.[1]

Council on Physical Medicine

The following article has been adopted by the Council on Physical Medicine.

The Council wishes to express its appreciation for the valuable cooperation of the Consultants on Ophthalmic Devices in reviewing and adopting this article. The consultants are Drs. Walter B. Lancaster, chairman; Thomas D. Allen, S. Judd Beach, Conrad Berens, Frederick C. Cordes, Alfred Cowan, William H. Luedde, Lawrence T. Post, Avery D. Prangen and Kenneth C. Swan.

HOWARD A. CARTER, Secretary.

TINTED LENSES

ALFRED COWAN, M.D.
Philadelphia

The following statement is made for the benefit of the public and for those ophthalmologists who are insufficiently informed and therefore misled by the extravagant and often untrue claims of a number of manufacturers of trademarked tinted lenses.

The vogue for tinted lenses has reached such an extent that most laymen and many ophthalmologists believe that the eyes need protection not only against daylight but against any light, even night light. Informed ophthalmologists disapprove the widespread, continuous and indiscriminate use of tinted lenses and object to the methods and wording of the advertisers of these glasses.

The purpose of light-filtering glasses is to protect the eyes against painful or harmful light. Unless the eyes are sick or abnormally sensitive, dark glasses are indicated only in the presence of extraordinary, excessive or misdirected light. Healthy, properly corrected eyes should be well able to tolerate bright sunlight unless it is reflected directly into the eyes by water, snow, sand or the like. The sole purpose of so-called "sun glasses" is to reduce considerably the amount of direct or reflected sunlight on those occasions when the amount is so great that it interferes with vision. On the occasions when protection is necessary the glasses should be dark enough to absorb from 60 to 75 per cent of the light and they should be colorless—smoke or gray.

Any person with normally healthy eyes should be comfortable under ordinary bright sunlight. Those who would be annoyed by less than unusually brilliant sunlight should be rare exceptions, not the rule.

Tinted lenses should not be worn indoors under properly placed artificial light and never outdoors at night. They are dangerous for night driving; the glare of an automobile headlight is due to the contrast with the surrounding darkness, and no type of tinted glass can change that. The sense of ocular fatigue after day driving is more often due to uncorrected or improperly corrected errors of refraction or of muscle balance than to the bright light.

Despite the fantastic, absurd and untrue claims of the manufacturers of certain tinted glasses, the lighter shades of colored glass—tints that are hardly perceptible—offer little more protection against glare than clear glass. Nevertheless, promoters assert that through their miracle glasses the light is soft, cool and restful, as in a cathedral; work, they claim, is done more efficiently and with greater comfort. These hyperphysical lenses are said to match the complexion; to be inconspicuous yet improve the appearance; even to increase the visual acuity somehow or other; to protect the eyes against the ultraviolet and infrared in daylight, against amounts of energy which no one except the exploiters of these glasses would ever consider harmful; to keep out most of the light which seems to be bad light and let in only the good light. Through these glasses they claim, there are no annoying color disturbances—the makers have produced the impossible, a colored glass without selectivity. They show pictures of persons reading through their wonderful lenses by the light of a lamp in an otherwise dark room—a spotlight; suggesting that inadequate or poorly distributed artificial light is all right if you wear the right tint.

From Fitzsimons General Hospital.

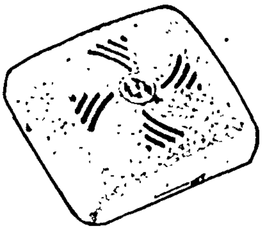
[1] Farrington, et al. Streptomycin Toxicity, J. A. M. A. **134:** 679-688 (June 21) 1947. A Preliminary Statement Concerning the Effects of Streptomycin Upon Tuberculosis in Man, manuscript prepared by the Surgeons General of the Army, Navy, and Veterans' Administration, July 3, 1947

The exploiters of these glasses would have the ophthalmologist consider a tint as a component of every lens he prescribes. This means that for the "visual comfort" of his patient the ophthalmologist would have to order a different shade for every intensity of light indoors and out. The patient would need a photometer and a bag full of tinted spectacles to meet what they suggest as requirements for proper vision.

AUREX HEARING AID, MODEL H, ACCEPTABLE

Manufacturer: Aurex Corporation, 1117 North Franklin Street, Chicago 10.

This is a plastic cased hearing aid, with separate batteries. The crystal receiver supplied has the Aurex trademark and is connected to the amplifier by a plastic covered cord (plugs at both ends). A four conductor battery cord connects to the batteries used.



Aurex hearing aid, model H.

One sliding type control on the side of the case serves as the switch and volume control. A rotating fan-type shutter may be turned from the center front of the case to close the microphone openings and serves as a partial tone control.

Dimensions and Weight

Dimensions: 70 by 63 by 22 mm. (2¾ by 2½ by ⅞ inch). Weight: Unit alone, approximately. 92 Gm. (3¼ ounces). With batteries, approximately 269 Gm. (9½ ounces).

Battery data		Voltage	Current
A 1½ volts	....	1.4 volts	55.0 milliamperes
B 30 volts	(Quiet)......	29 volts	0.6 milliampere
	(Squealing)..	29 volts	1.0 milliampere

Acoustical Gain

Measurements were made of the acoustical gain of the instrument in decibels. This is the decibel difference in sound pressure between the pressure at the face of the microphone opening (with the instrument set in a 16 by 8 inch, 40.6 by 20.3 cm., baffle) and the sound pressure produced by the receiver in a 2 cc. coupler. The microphone sound pressure was held at a level of 40 decibels over 0.0002 dyne per square centimeter. Typical results, obtained with the volume control full on and the tone control shutter open, are here tabulated for seven frequencies.

Frequency (cycles) ..	256	512	1,024	1,200	2,250	3,100	4,096
Gain in decibels.......	53	56	69	63	55	34	42

Maximum Output Pressure

Measurements were made of the approximate maximum sound pressure the instrument would produce in the 2 cc. coupler with the instrument set for full gain and shutter open. Levels are in decibels relative to 0.0002 dyne per square centimeter.

Frequency	Input Level	Maximum Output Level
600 cycles	55 decibels	103 decibels
1,024 cycles	55 decibels	113 decibels
2,048 cycles	60 decibels	104 decibels

Intelligibility Tests

Intelligibility tests (random words) were made with a person of normal hearing seated inside a booth giving about 30 decibels sound reduction. The speaking person was outside the booth using a normal tone of voice. The score made under these critical conditions was 48 per cent. These conditions are severer than tests using a deafened observer, because any internal instrument noise causes a lower signal to noise ratio due to the lower threshold of the person with normal hearing.

The Council on Physical Medicine voted to include the Aurex Hearing Aid, Model H, in the list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

ISOBORNYL THIOCYANOACETATE-TECHNICAL.—$C_{13}H_{19}N_2OS$.—M. W. 253.35. The technical grade of isobornyl thiocyanoacetate contains 82 per cent or more of isobornyl thiocyanoacetate with other terpenes.

Actions and Uses.—Isobornyl thiocyanoacetate is one of the thiocyanates shown to be effective as a pediculicide. A mixture of the technical grade of this compound with dioctyl sodium sulfosuccinate in the form of an oil emulsion is useful for external application to eradicate both the adult and ova forms of Phthirius pubis, Pediculus humanus capitis and Pediculus humanus corporis. Skin irritation studies reveal that the compound may act as a mild primary irritant to the skin of some persons, but there is no evidence that it acts as a sensitizing agent. It should not be applied too close to the eyes or to mucous membranes.

Dosage.—An oil emulsion containing isobornyl thiocyanoacetate—technical 5 per cent dioctyl sodium sulfosuccinate 0.6 per cent is applied externally in amounts of 30 to 60 cc. depending on the site involved (quantity of hair), worked into a lather and allowed to remain for from five to ten minutes. In the case of the scalp, the hair is then combed and permitted to dry, and the emulsion is left on over night. The head is washed the following day. In the case of the pubis and other regions of the body, the emulsion is worked into a lather and then washed off with soap and water. Care must be taken that the emulsion does not remain in contact with the skin for too long. More than two such applications should be avoided.

Tests and Standards.—

Isobornyl thiocyanoacetate-technical occurs as a yellow, oily liquid, possessing a terpene-like odor. It is very soluble in alcohol, benzene, chloroform and ether; it is practically insoluble in water. The refractive index of isobornyl thiocyanoacetate-technical is 1512. Its specific gravity at 25 C. is 1.1465. The acid number is 1.19.

Add to about 25 mg. of isobornyl thiocyanoacetate-technical in a small beaker 5 cc. of twice normal alcoholic potassium hydroxide. Cover the beaker with a watchglass and warm on a hot plate for five minutes. Acidify one half of the solution with dilute sulfuric acid and add a few drops of ferric ammonium sulfate T.S.: a red color develops.

Add 1 cc. of 10 per cent ferrous sulfate T.S. to the other half of the solution and warm for another five minutes. Make the solution acid to litmus paper with diluted sulfuric acid: a blue color develops in the solution.

Add 1 cc. of twice normal alcoholic potassium hydroxide to 5 cc. of a 10 per cent alcoholic solution of isobornyl thiocyanoacetate-technical: a yellow color forms, which rapidly changes to deep orange.

Dissolve 10 Gm. of isobornyl thiocyanoacetate-technical in 25 cc. of a saturated solution of potassium in methanol hydroxide and reflux on the steam bath for two hours. Pour the solution into 500 cc. of saturated sodium chloride solution and then acidify with hydrochloric acid. Filter the precipitate on a Buchner funnel, wash with saturated sodium chloride solution and air-dry on the filter. Dissolve the precipitate in petroleum ether, add 20 Gm. of anhydrous sodium sulfate, stopper and let stand for several hours. Filter, then evaporate the filtrate to a small volume and cool in an ice bath to effect crystallization. Filter off the crystals, wash with a few cubic centimeters of cold petroleum ether and air-dry: the isolated isoborneol melts from 200 to 205 C.

Determine the nitrogen content of isobornyl thiocyanoacetate-technical by the Kjeldahl procedure: the amount of nitrogen found is not less than 4.6 per cent, which is equivalent to an isobornyl thiocyanoacetate content of 80 per cent.

ISOBORNYL THIOCYANOACETATE LOTION

Pipet 10 cc. of bornate lotion into a graduated 100 cc. separatory funnel. Add 50 cc. of ether and shake vigorously. Add 10 cc. of ethanol and shake the contents of the flask to break the gel. Allow the funnel to stand and then draw off the lower layer. Dilute the solution in the separatory funnel to 100 cc. with ethanol. Transfer a 10 cc. aliquot to a Kjeldahl flask and determine its nitrogen content: the amount of isobornyl thiocyanoacetate-technical is not less than 90 per cent and not more than 110 per cent of the claimed amount.

WYETH INCORPORATED, PHILADELPHIA 3

Lotion Bornate: 60 cc. and 3.785 liter bottles. An emulsion containing isobornyl thiocyanoacetate 5 per cent, dioctyl sodium sulfosuccinate 0.6 per cent in mineral oil 5 per cent, gelatin 0.6 per cent and water.

JOHNSON & JOHNSON, NEW BRUNSWICK, N. J.

Hemo-Pak Absorbable Gauze Packing Strip (4 ply): 2 by 14 inches (5.08 by 35.56 cc.) and ½ inch by 2½ yards (1.27 by 228.6 cc.) in sealed tubes.

Hemo-Pak Absorbable Cotton Pad: 2 by 6 inches (5.08 by 15.24 cc.) in sealed tubes.

U. S. trademark registration pending.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - CHICAGO 10, ILL.

Cable Address "Medic, Chicago"

Subscription price Twelve dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter

SATURDAY APRIL 24, 1948

THE JOURNAL INDEX

Because of the continued absence of the compositors from work in the printing department, the index for volume No. 136 of THE JOURNAL will be published later.

VISUAL TRAINING FOR MYOPIA

In 1920 William H. Bates published a book, "Perfect Sight Without Glasses," in which he advanced the hypothesis that visual derangements and refractive errors are due to a deformation of the eyeball resulting from a nervous and muscular strain from the superior and inferior oblique muscles and that the ciliary muscle has nothing to do with focusing the eye. He developed a corrective treatment consisting of eye exercises described as "blinking," "winking," "nose reading," "palming" and "sunning." Established clinical and scientific observations do not support the Bates thesis. Lancaster[1] felt, however, that "buried in a mass of what to the ophthalmologists seem foolish gestures and performances, there are sound and fruitful ideas." Since seeing is only half ocular, according to Lancaster's statement, the other half being cerebral, repetition, practice and exercise are capable of building up a substratum of memories useful for the interpretation of sensation and formation of syntheses which are the larger part of seeing. Duke-Elder[2] pointed out in his review of Huxley's "The Art of Seeing" that visual defects are sometimes muscular in origin, sometimes pyschologic. The competent ophthalmologist treats the former with curative exercises, while the pyschologic approach is used for the mental aspect.

From the Wilmer Ophthalmological Institute of the Johns Hopkins Hospital and University comes a report on the results obtained in the treatment of myopia by visual training. According to Alan C. Woods,[3] 103 myopic persons were subjected, after preliminary examination, by a group of optometrists and psychologists to a course of visual training designed to improve their uncorrected vision. Improvement was noted in 30 of the group (29 per cent). It was considered that the improvement was due to education in the correct interpretation of a blurred visual image. In some of the patients exercises produced a beneficial psychologic reaction toward their visual handicap, regardless of whether an actual improvement in visual acuity had occurred. With the possible exceptions of educating some patients to interpret blurred retinal images more carefully and of convincing some others that they could see better even though there was no actual improvement, this study indicates that the visual training used on these patients was of no value for the treatment of myopia.

A similar study carried out by Hildreth[4] and co-workers at the department of ophthalmology of the Washington University and the Oscar Johnson Institute brought forth the following observation and conclusions: Fifty-four selected patients with myopia were given a course of visual training which was preceded and followed by a complete ophthalmologic examination. The training was given by an optometrist while the pretraining and post-training examinations were made by a group of ophthalmologists. Thirty of the patients showed no change in their acuity, while 12 manifested a definite improvement, the best results being obtained in the subjects with low degrees of myopia. Twelve patients showed a change so slight as to be excluded in the results. The change in the improved group averaged 27 per cent. There was no change in the refractive error and no significant alteration in the ocular neuromuscular mechanism. The improvement, it was believed, probably occurred because of an improvement in reception due to stimulation of the visual effort, as the best results occurred in those patients whose pretraining acuity was less than would be expected from their refractive error. It was considered that visual training has a definite but limited value in some myopic patients, predominantly in those whose vision does not correspond with their known myopia.

---

[1] Lancaster, W. B.: Present Status of Eye Exercises for Improvement of Visual Function, Arch. Ophth. 32:167 (Sept.) 1944.

[2] Duke-Elder, S.: The Art of Seeing by Aldous Huxley; book review, Arch. Ophth. 30:582 (Oct.) 1943.

[3] Woods, A. C.: Report from the Wilmer Institute on the Results Obtained in the Treatment of Myopia by Visual Training, Am. J. Ophth. 29:28 (Jan.) 1946.

[4] Hildreth, H. R., Meinberg, W. H.; Milder, B.; Post, L. T., and Sanders, T. E.: The Effect of Visual Training on Existing Myopia, Am. J. Ophth. 30:1563 (Dec.) 1947.

Visual training merits further study from the ophthalmologists, particularly in relation to progress in myopia. However, the careful scientific studies that have been made now prove that the slogan "Throw away your glasses and have perfect sight" is a dangerous suggestion. The benefits from muscular training alone are a minimal aid in the proper assisttance to faulty vision.

Current Comment

MEDICAL EDUCATION IN PUERTO RICO

Puerto Rico does not have a medical school. Unquestionably Puerto Rico suffers from a shortage of physicians and particularly from a shortage of competent physicians. As was pointed out by the commission headed by Dr. Ernest E. Irons which visited Puerto Rico recently, the Puerto Rican government arranged for the admission of a number of physicians who could not meet the standards of North American licensing boards or of the Council on Medical Education and Hospitals of the American Medical Association. Those who promoted this procedure argued that these physicians would locate in the rural areas and small towns and thus make available medical service to persons who could not secure it. Actually, many of these physicians drifted promptly into the larger cities and proved again that economic factors involved in determining the location of physicians for practice dominate other considerations. Now the proposal has been made by a group of Polish physicians associated during the war with the University of Edinburgh, which made available to them its laboratory facilities for the establishment of a medical school in which medicine was taught in Polish, to move the institution to Puerto Rico and organize a medical school along European lines with funds which are promised from the so-called Paderewski Foundation. Reports say that some $4,000,000 are available for the purpose. Whether such a project could succeed is extremely doubtful. Medical schools are not made in a day or a night. The quality of the faculty is dependent on its ability to secure competent teachers in the basic sciences and clinical teachers of experience in sufficient numbers to give individual instruction to prospective physicians. Since the proposed faculty did most of its teaching in Polish while resident in Edinburgh, some doubt arises as to the ability of the same faculty to teach successfully in either English or Spanish, should they become established in Puerto Pico. Certainly before any positive action is taken a most thorough investigation should be made as to the medical educational standards to be followed, since the organization of a medical school of less than a minimum standard for medical education that prevails in the United States would be a wasteful expenditure of time, energy and foundation. In the meantime through proper cooperation between leaders of medicine in Puerto Rico and those in the United States increasing efforts should be made to accommodate from thirty to fifty young properly qualified Puerto Rican students annually in the medical schools of the United States.

BIOLOGIC AVAILABILITY OF PROTEIN

A new procedure for measuring the biologic availability of proteins consists in removing surgically about 70 per cent of the liver of rats previously fed a high calory , protein-free diet and measuring the replacement of this liver protein during a recovery phase.[1] Some replacement of liver protein occurs even on a protein-free diet as the result of mobilization of tissue proteins. Feeding gelatin and zein lead to no more regeneration of protein than does the nonprotein diet. Wheat gluten gives a moderate increase, liver protein and casein a larger increase; fibrin and whole egg protein result in the greatest increase in liver protein regeneration. The results confirm those obtained by the nitrogen balance method.

TUBULAR REABSORPTION OF INORGANIC SULFATE

The ability of the kidney tubules to reabsorb normal levels of essential constituents of plasma and to allow excess amounts to pass on into the urine constitutes a principal mechanism for the control of the blood level of these substances. Waste products do not show so definite a threshold; in the case of creatinine, none is reabsorbed and all that is filtered through the glomerulus passes into the urine. A recent study[1] of the excretion of sulfate reveals that this substance has a sharp renal threshold at a level which corresponds to the normal concentration in plasma. At higher plasma levels, the tubular reabsorption remains constant and excess sulfate is excreted. The existence of this threshold would seem to suggest that the small amount of sulfate in the blood, which has heretofore been considered to be simply excretory, plays some metabolic role.

---

[1] Vars, H. M., and Gurd, F. N.: Am. J. Physiol. 151 399, 1947

[1] Lotspeich, W. T.: Am. J. Physiol. 151: 311, 1947.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

April 22, 1948.

Debate Cause of Shortage of Physicians in Maryland

A Cumberland County general practitioner has squared off with the members of the medical profession in Maryland over the reason for the shortage of physicians. Dr. Charles S. Maxon, president of the Medical and Chirurgical Faculty of Maryland, the State Association of Physicians and Surgeons, said that it is harder to get the services of a physician because, among other things: patients abuse physicians by calling them at all hours over minor aches and pains; physicians like the forty hour week, and medical schools turn out too many specialists and not enough general practitioners. Dr. Richard J. Williams of Cumberland County took issue with views of Dr. Maxon and declared that " unless you men at the top speedily mend your ways and stop trying to shift the responsibility onto the shoulders of the few of us who are doing general medicine, then the public will rise up and give us state medicine whether we like it or not."

Chest X-Ray Drive Going Down Embassy Row

Foreign embassies are cooperating in the national chest x-ray drive now being conducted throughout the country. A survey machine paid its first visit to the Chinese Embassy in a series of stops that will include the whole diplomatic corps. A portable x-ray machine will visit the British Embassy for examination of Lord Inverchapel, retiring ambassador, and members of the staff and their families. Australia, New Zealand and the Union of South Africa are next on the list, to be followed by sixty-five other embassies, legations and missions.

Study Use of Penicillin to Prevent Infant Blindness

Dr. Joseph S. Spoto, senior surgeon in the Venereal Disease Division of the U. S. Public Health Service, said preliminary studies reveal that penicillin may be a safer and more effective substance than silver nitrate to prevent blindness among newborn infants. He disclosed in a letter to Representative Huber, Democrat of Ohio, that the use of penicillin for this purpose is now under test. He explained that penicillin can be applied either by eye droppers as with silver nitrate or by treating the mother with the drug several days before the birth of the child. Laws of most states now require that a mild solution of silver nitrate be applied to an infant's eyes as a protection against infection.

Senators Testify for Heart Institute Bill

Senators of opposite political allegiance testified in support of a bill to establish a National Heart Institute under the U. S. Public Health Service, a bill which is sponsored by Senators Bridges and Ives, Republicans, and Senators Pepper and Murray, Democrats. In addition to Bridges and Pepper, witnesses included interested members of the House of Representatives and Federal Security Administrator Oscar R. Ewing, who declared that " The extension of Federal aid for heart disease research and control is indispensible to any coordinated, large scale attack on the problem." The bill would also authorize the Surgeon General to conduct and foster research, provide grants to universities, hospitals and other agencies for heart disease study and establish research fellowships at the institute and elsewhere. Also proposed is a national Heart Council to advise the Surgeon General and authorize him to make grants in aid to states and other agencies for prevention, diagnosis and treatment of heart disease. Surgeon General Leonard E. Scheele, of the Public Health Service, and representatives of the American Heart Association also testified.

Dr. John R. Heller Heads National Cancer Institute

Dr. John R. Heller, former head of the Venereal Disease Division of the U. S. Public Health Service has been appointed director of the National Cancer Institute of Bethesda, Md. He succeeds Dr. Leonard A. Scheele, who has been appointed Surgeon General of the U. S. Public Health Service. Dr. Heller will supervise the federal cancer program, including research conducted at Bethesda laboratories, research grants to other laboratories and hospitals, and federal aid in teaching and cancer control work.

Mrs. Meyer Urges Revamping of Nation's Social Agencies

Mrs. Eugene Meyer, wife of the chairman of the board of the *Washington Post*, told a local group that there is need for cooperation of social agencies and a united effort to coordinate the nation's "cluttered community services." She criticized Dr. Alfred C. Kinsey's "Sexual Behavior of the Human Male "as a flagrant misuse of the scientific method.

Medical Legislation

Mississippi

Bill Enacted.—H.386 was approved March 23. It provides for the appropriation of $510,000 to the state medical education board for the purpose of carrying out the provisions of the law relating to medical scholarships and loans.

New Jersey

Bill Enacted.—S.J.R.5 has become Joint Resolution No.2 of the Laws of 1948. It designates the month of April as Cancer Control Month throughout the state of New Jersey and urges citizens thereof to give support to the American Cancer Society and its cancer control program.

New York

Bill Enacted.—S.2524 has become chapter 695 of the Laws of 1948. It provides for the establishment of a state university and directs such state university to formulate plans and make recommendations for the establishment of two health and medical centers as a part thereof.

South Carolina

Bill Enacted.—H.1457 has become Governor's Act No. 798 of the Acts of 1948. It authorizes the acquisition of land for a site for a teaching hospital in the city of Charleston for use by the Medical College of South Carolina.

Virginia

Bills Enacted.—H.439 was approved April 1, 1948. It requires every practicing medical doctor to obtain a revenue license.

S.177 was approved April 1. To amend the hospital lien law, it increases the extent of such lien in favor of hospitals and physicians.

GOVERNMENT SERVICES

ARMY

PROGRAM FOR RESERVE OFFICERS

A committee of scientists and engineers who hold commissions in the Organized Reserve Corps met at the Pentagon Building March 26-27 to consider the Army's proposed research and development reserve program. The committee approved the contemplated program and recommended its immediate establishment; it recommended also procedures for optimum use of the technologic skills of all reserve officers engaged in the medical, biologic, physical and engineering sciences. With Brig. Gen. Norman W. Lack of Wilmington, Del., as chairman, the committee included representatives of various aspects of research, both governmental and industrial, scientific societies and educational institutions.

Under the proposed program, reserve officers who are professional scientists would be enabled to pool their knowledge for concentrated attack on Army research and development problems; it is contemplated that the program will result in effective mobilization assignments for key scientists to insure rapid mobilization in event of emergency. The first of the research and development reserve groups formed under this program was established in Wilmington, Del., in 1947 under the leadership of Brig. Gen. Lack. Similar units are being established in Philadelphia and Urbana, Ill. When the program has been approved, it is anticipated that similar groups will be instituted throughout the country.

NEW ASSIGNMENTS IN SURGEON GENERAL'S OFFICE

The Surgeon General's Office announces the following new assignments: Col. Clifford G. Blitch, chief, Medical Consultants Division; Lieut. Col. Otis W. Snyder, office of the chief, Personnel Division; Major Kenneth E. Ranson, chief of the Enlisted Branch, Personnel Division; Major Marion C. Stith, executive officer of the Hospital Division; Major William J. Clegg Jr., chief of the Administrative Branch, Hospital Division; Capt. Ula M. Morgan, assistant chief, Hospital Standards and Inspection Branch, Hospital Division, and Capt. Joseph D. Nolan, chief, Medical Regulating Branch, Hospital Division.

MEDICAL MEETING IN KOREA

About sixty officers of the medical department attended the monthly meeting at the 377th Station Hospital in Korea on March 24, at which the hospital commandant, Col. Herbert J. Witt, M.C., presided at the afternoon session. A symposium was presented on Korean medical education in which Capt. J. Richard Compton, M.C., chief of medical service at the hospital, discussed "Korean Medical Education Under New Influences"; Mildred Barody, R.N., Department of Labor, "Experiences in Organizing Industrial Medical Care"; Capt. Irwin L. Selvage Jr., M.C., "Roentgenologic Methods and Results"; Dr. Keum S. Sohn, director, Seoul Red Cross Hospital and chairman of the board of trustees, Korean Medical Association, "Current Problems in Hospital Management," and Lieut. Morton Palken, M.C., "Exigencies of a Surgical Practice Under Economic Stress." In the morning a case of kala-azar in a Korean refugee was presented, also papers on "Hospital Supply Procedures" by Capt. Louis J. Chaput, M.S.C., and "Reports of Surveys" by Capt. James O. Darling. Following a business meeting at which Col. Charles P. Ward, 24th corps surgeon, presided, a buffet supper was served at the Nan San Hotel.

ARMY INSTITUTE OF PATHOLOGY

Dr. Arthur T. Hertig, assistant professor of obstetrics, Harvard Medical School, Boston, discussed "Human Development in Its Earliest Stages" before the staff of the Institute in Washington, D.C., March 24.

Dr. Hans F. Smetana of the Institute of Pathology talked on "Periarteritis Nodosa Medionecrosis and Dissecting Aneurysms" at George Washington University School of Medicine March 19.

During April the institute held exhibits at the following places: annual meeting of Ohio State Medical Association, Cleveland; American Association for Health and Physical Education, Kansas City, Mo.; celebration of Army Week, Boston, and at the annual meeting of the National Conference of Social Workers, Atlantic City, N. J.

AIR FORCE

N.R.C. COMMITTEE VISITS RANDOLPH FIELD

The committee on Aviation Medicine of the Division of Medical Sciences, National Research Council, visited the Air University School of Aviation Medicine, Randolph Field, Texas, April 3 to review its research activities and to hold a seminar on a specific phase of aviation medicine.

Among the visitors were: Dr. Detlev W. Bronk, Johnson Research Foundation, University of Pennsylvania, (chairman); Dr. Wallace O. Fenn, University of Rochester, Rochester, New York; Dr. John C. Flannagan, University of Pittsburgh; Dr. H.K. Hartline, University of Pennyslvania, Philadelphia; Dr. George L. Maison, Boston University School of Medicine; Dr. Craig L. Taylor, University of Southern California, Los Angeles, and Dr. E. J Baldes, Mayo Clinic Aero-Medical Unit, Rochester, N. Y.

Accompanying the scientists were: Col. O.O. Benson Jr., Chief of Research, Air Surgeon's Office; Capt. Winfred P. Dana, research director, Bureau of Medicine and Surgery, Washington, D.C.; Wing Comdr. B.R. Brown, Institute of Aviation Medicine, Toronto, Canada, and Wing Comdr. J.H. Neal, Medical Air Attache, British Embassy, Washington, D.C.

SPECIAL RESEARCH POSITION OPEN

The Air University School of Aviation Medicine, Randolph Field, Texas, is in receipt of an announcement from Headquarters, U.S. Air Force, that the school has been allotted one of a limited number of special research positions authorized by Congress to attract outstanding scientists to service laboratories. The School of Aviation Medicine intends to utilize the new allocation, which carries with it a salary of $10,000 to $15,000 per annum, to establish a civilian position for a director of research. Inquiries concerning this vacancy should be addressed to the commandant.

NAVY

MEDICAL OFFICERS CERTIFIED BY BOARDS

The Bureau of Medicine and Surgery announces that as of March 30, one hundred and thirty-nine medical officers of the Regular Navy have been certified by American specialty boards, and that two hundred and five medical officers had completed graduate training courses of six months to one year's duration in various specialties during 1947. Of this number, eighty-seven were trained in civilian institutions and one hundred and eighteen in naval hospitals. Additional medical officers will be eligible for examinations by specialty boards within the next few months.

PLAN ADDITIONAL RESERVE MEDICAL DIVISIONS

A new organization plan for inactive volunteer reserve units of the Navy Medical Corps, which provides for the formation of two hundred and forty reserve medical divisions throughout continental United States, has been placed in effect. To date one hundred and forty-four reserve medical divisions have been organized in the eleven continental Naval Districts and the Potomac River Naval Command. Members of the inactive volunteer reserve are assigned to the individual medical division in accordance with their professional qualifications. Their assignment, however, carries no additional obligations or responsibilities other than those which the members are willing to assume. The new plan permits the administration of a training program for inactive reservists, including medical division meetings at which qualified instructors present subjects peculiar to military medicine; in addition, special training courses on some of the subjects may be arranged.

THE SURGEON GENERAL'S SYMPOSIUM

The symposium of the Surgeon General with all district medical officers, medical officers in command of naval hospitals and other medical activities will be held at Bethesda, Md., May 27-29. The subjects discussed will include the organization of the Bureau of Medicine and Surgery, the graduate training program, formation of reserve divisions, modernization of equipment in naval hospitals, medical aspects of atomic energy, procurement and personnel, planning and logistics. In addition to naval officers, the speakers will include the Honorable John L. Sullivan, Secretary of the Navy, and Dr. Henry L. Bockus of Philadelphia.

NEW REGULAR OFFICERS

The following physicians have been commissioned in the Medical Corps of the Regular Navy: Comdr. LeRoy E. Wible, Albuquerque, N.Mex., and Lieut. John T. Egan Jr., Jamaica, N.Y.

The following graduates of the Navy's V-12 program have accepted commissions in the Regular Navy Medical Corps: Lieuts.(jg) John P. Ahearn, Somerville, Mass.; Carleton J. Brown, New London, Conn.; Robert J. Evoy, Seattle; Arthur A. Helgerson, Attleboro, Mass.; James H. Lee Jr., Wilmington, Del.; Joseph E. F. Rankin, Baltimore; Myron E. Samuelson, Genoa, Neb., and Julius H. Spence, Austin, Texas.

VETERANS ADMINISTRATION

MEDICAL ADMINISTRATIVE OFFICERS WANTED

The U. S. Civil Service Commission is accepting applications to fill high level administrative positions with the Veterans Administration in the field of medical administration. These positions are open in the central office of the Veterans Administration in Washington, D. C., and in branch offices and hospitals throughout the country. The salaries range from $7,102 to $9,975 a year. In the central office the duties of these positions are in part as follows: developing policy, determining methods and supervising such administrative activities of veterans' hospitals and national homes as admissions, discharges, transfers and food requirements. In the branch offices the duties are to supervise the program for medical administration and to coordinate it in centers, hospitals, homes and regional offices of the branch area. In the veterans' hospitals the duties of these positions are to coordinate and direct the activities of hospitals within the scope prescribed by the deputy administrator or the Department of Medicine and Surgery, by formulating and executing local policies and by carrying out plans issued by higher authorities; also, to administer the medical activities of the hospital through the chief medical officer.

Applicants must be citizens of or owe allegiance to the United States, or be citizens of the Republic of the Philippines. Applications should be made on circular EC-11, which shows the administrative experience requirements for these positions. Persons interested should apply not later than April 14, 1948 to the U. S. Civil Service Commission, Washington, D. C.

HOSPITAL CONSTRUCTION AT NEW HIGH

Lieut. Gen. Raymond A. Wheeler, chief of Army engineers, announces that twenty-three veterans' hospitals are now under construction and when completed will provide an additional 10,386 beds. During the first quarter of 1948 contracts were let for twelve general hospitals and bids on two additional hospitals were advertised. In addition, forty-six hospitals are still in the process of design; forty others have progressed sufficiently to be scheduled for advertising. During the present year the five hospitals which have not yet been scheduled for advertising include the six hundred bed tumor clinic in Chicago and four general hospitals to be constructed in Boston, New York, Syracuse and Washington, D.C. Of seventy-one hospitals scheduled for construction by the Corps of Engineers under the Veterans Administration program, five had been designed by the Agency prior to the engineers' participation in the program. General Wheeler also announced that contracts had been awarded for the nine hundred and ninety-nine bed hospital in Albany, N.Y. The total amount of the six contracts involved is $14,445,727. Construction progress on the Veterans Administration hospital program has doubled that of last year, General Wheeler said. The increased construction costs necessitated the redesigning of practically all hospitals that had not been actually placed under contract.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Medical Garden Club Show:—The Los Angeles County Medical Garden Club will present the regular Spring Flower Show in the lounge of the Los Angeles County Medical Association headquarters building on April 29-30. This show will be opened to the public without admission charge April 19 from 12 noon to 9 p.m. and Friday, April 30, from 9 a.m. to 9 p.m. Entries will be accepted from doctors of medicine. Flower arrangements only may be entered by the wives of physicians. and members of the physicians office personnel.

COLORADO

Laboratories Approved for Blood Tests.—The state department of public health has approved twenty-two laboratories in Colorado to perform premarital and prenatal blood tests. Their certificates of approval will expire Dec. 31, 1948 but may be renewed. These laboratories were required to pass inspection. Each received two hundred blood specimens and was required to obtain an average of not less than 99 per cent correct results on the nonsyphilitic specimens and not less than 90 per cent on the syphilitic specimens as compared with the results of the control laboratories. Clerks in marriage license bureaus have been instructed to accept blood tests only from approved laboratories , a list of which may be secured by writing Marjorie Van Vranken, Secretary, Evaluation Committee, 430 State Office Building, Denver.

State Health Department Reorganizes.—In the recent reorganization of the Colorado State Department of Public Health all sections dealing with medical care and services have been put under a director of Preventive Medicine Services. Those sections whose activities are used by all other units in the department, such as administration, health education, records and laboratories, have been placed in the Division of General Services, thus eliminating the need for their duplication in various sections. All sanitation activities will be under the direction of the Division of Sanitary Services. Three new services under full time directors have been added: health education, hospital facilities and veterinary medicine. Increased budget and personnel have made it possible to provide more service to local areas in the form of consultation and advisory visits on both old and new programs and to begin services which previously had not been available.

CONNECTICUT

Memorial to D. Chester Brown.—A gift of several thousand dollars has been contributed to the building fund of the Connecticut State Medical Society by the friends and patients of the late Dr. D. Chester Brown. Dr. Brown was a trustee of the American Medical Association from 1918 to 1930. He was president of the Connecticut State Medical Society in 1913 and president of the Fairfield County Medical Association in 1908.

New Medical Building in Hartford.—Construction of an eight story medical building to provide suites of offices for about ninety physicians was recently begun in Hartford. The building is being erected by the Connecticut Mutual Life Insurance Company adjacent to the new addition to the Hartford Hospital.

ILLINOIS

Nursing Homes.—The state department of public health has licensed two hundred and twenty-two nursing homes and exercises supervision over them. Peoria County heads the list with 565 beds. Cook County, outside Chicago, has twenty-one nursing homes with a bed capacity of 1,144. A directory of all nursing homes in Illinois that are licensed by the Illinois State Department of Public Health is available on request to the department's Division of Sanitary Engineering, Springfield.

Chicago

Goodspeed Memorial Fund.—The Charles B. Goodspeed Memorial Fund has been started in memory of the late former president and benefactor of Presbyterian Hospital. Other friends of Mr. Goodspeed are being invited to join with staff contributors in providing the fund. Drs. William G. Hibbs and Harry Boysen comprise the medical staff committee in charge of the project. Checks made payable to Presbyterian Hospital and designated for the Goodspeed Memorial Fund may be sent to the committee. Pledges payable over a period of five years also are sought.

INDIANA

New Section Created.—A section on obstetrics and gynecology of the Indiana State Medical Association has been organized with Dr. Dudley A. Pfaff, Indianapolis, chairman, and Dr. Edgar L. Engel, Evansville, secretary.

Medical Alumni Day.—The first Alumni Day of the Indiana University School of Medicine will be held on the Medical Center campus in Indianapolis on May 5, also Founders Day of the university. A clinical program will be held in the auditorium of the medical school from 9:30 to noon. Luncheon at 1p.m. will be followed by a general session at 2 p.m.

IOWA

State Journal Dedicated to Dr. MacEwen.—The April issue of the *Journal of the Iowa State Medical Society* has been designated the Dean MacEwen Memorial Issue and contains articles contributed by the staff of the State University of Iowa College of Medicine, where Dr. Ewen M. MacEwen served as dean from 1935 to 1947. Problems of medical education, research and hospitals are discussed in the issue.

MAINE

Dr. Crosby Honored.—More than three hundred and fifty townspeople of Milo honored Dr. Nathaniel Crosby at a town hall meeting February 23, on the occasion of his eighty-fourth birthday and his fifty-seventh year of service as a physician. The Rotary Club of Bangor shared in the proceedings, and the Maine Medical Association sent greetings. Many tributes were paid to Doctor Crosby for his years as a general practitioner.

MASSACHUSETTS

Harvard Increases Tuition.—An increase in tuition for all students at Harvard Medical School and Harvard University Dental School, Boston, was announced April 5. Tuition in both schools, which has been $580 a year since 1945, will be raised to $800 a year beginning in the fall term of 1948. Officers of the two schools assured students that loan funds and scholarships are at hand to assist individuals in meeting the increased cost. Additional scholarship funds will be available next autumn.

MINNESOTA

Personal.—Charles Sheard, Ph.D., Director, Division of Physics and Biophysical Research, Mayo Clinic, Rochester, Minn., was guest of honor at a dinner in Washington, D.C., March 11, at which Surgeon General Clifford A. Swanson, U.S. Navy, and representatives Dewey Short of Missouri and Arthur L. Miller of Nebraska were among the speakers.

Public Health Nursing Services.--Since the passage a year ago of the state law subsidizing public health nursing, eleven counties of Minnesota have established public health nursing services and eight have taken advantage of the subsidy provisions to employ additional nurses. The state now has four hundred and sixty-four public health nurses, about equally divided between large cities and rural areas.

NEBRASKA

Dedicate Childrens Memorial Hospital.—The dedication in Omaha of the Childrens Memorial Hospital was held in February. According to newspaper reports more than 30,000 persons from Nebraska and surrounding states contributed to the hospital fund. The hospital adds more than one hundred beds for the treatment of children and will make available improved facilities for study and research in growth and development. The combined staffs of Creighton University School of Medicine and University of Nebraska College of Medicine make up the medical organization of the hospital.

NEW JERSEY

Annual State Medical Meeting.—The Medical Society of New Jersey will hold its annual meeting at Haddon Hall, Atlantic City, April 26-29. The program is made up largely of section meetings in which members of the society and guest speakers will take part. At the general session Wednesday afternoon, Mr. Arthur L. Conrad, Chicago, will speak on "Implications of Socialized Medicine" and Dr. Isidore Snapper, New York, on "Medicine Is Global." The dinner dance will be Wednesday at 7:30 p.m. The guest speaker will be John C. Krantz Jr., Ph.D., Baltimore, 'The Simplicity to Wonder." Scientific, educational and technical exhibits have been arranged. The Woman's Auxiliary will meet in conjunction with the state society.

NEW YORK

Postgraduate Lectures.—The following postgraduate lectures have been arranged by the Medical Society of the State of New York in cooperation with the New York State Department of Health:

Sullivan County Medical Society

April 21 George P. Heckel, Rochester, Practical Application of Endocrines in Gynecology, Workmen's Circle Sanatorium, Liberty, 8:30 p.m.
April 28 Clyde L. Randall, Buffalo, Office Management of Female Pelvic Disorders, Lenape Hotel, Liberty, 8:30 p.m.
May 5 Ferdinand J. Schoeneck, Syracuse, Sterility, Monticello Hospital, Monticello, 8:30 p.m.
May 12 Chester E. Clark, Syracuse, Gynecology in General Practice, home of Dr. Harry Golembe, Liberty, 8:30 p.m.

Nassau County Medical Society

April 27 A. W. Martin Marino, Brooklyn, Early Diagnosis of Cancer of Rectum, Garden City Hotel, Garden City, Long Island, 9:00 p.m.
May 25 Robert M. Marcussen, New York, Treatment of Migraine, Cathedral House, Garden City, Long Island, 9:00 p.m.

The Ontario County Medical Society will hear Dr. Jacob D. Goldstein, Rochester, speak on diseases of the liver, at Canandaigua Hotel, Canandaigua, April 13, 8 p.m. On May 13 Dr. Richard S. Farr, Syracuse, will address the Jefferson County Medical Society at Hotel Woodruff, Watertown, 8:30 p.m., on treatment of low back pain.

PENNSYLVANIA

County Society to Honor Dr. Bortz.—A homecoming celebration in honor of Dr. Edward L. Bortz, Philadelphia, President of the American Medical Association and a native of Westmoreland County, is being sponsored by the Westmoreland County Medical Society on May 5-6. A public health meeting in the Greensburg High School Auditorium on May 5, 8:15 p.m., with Dr. Bortz speaking on "Health as Our Fundamental National Resource" will start the celebration. Others to speak at this public meeting will be: Dr. Norris W. Vaux, Philadelphia, secretary of health; Mr. Lester H. Perry, executive secretary of the state society; Dr. Chauncey L. Palmer, Pittsburgh, chairman of the Committee on Public Health Legislation; Dr. Oliver E. Turner, Pittsburgh, member of the commission on Public Health and Preventive Medicine; and Dr. Pascal F. Lucchesi, superintendent and medical director of Philadelphia General Hospital, Philadelphia. On Thursday, beginning at 10 a.m., an all scientific program will be held at the Westmoreland County Hospital Dr. Elmer Hess, Erie, president of the Medical Society of the State of Pennsylvania, will discuss "Urologic Hints for the General Practitioner." Six other specialists will appear on the morning program. Speakers at the session to be held at the Greensburg Country Club will be:

Dr. James E. Paullin, Atlanta, Ga., Peptic Ulcer, Pathogenesis and Medical Approach.
Dr. Waltman Walters, Rochester, Minn., Surgery in Peptic Ulcer.

Dr. Paullin will also talk on the "Management of Severe Diabetes" and Dr. Walters on "Advance in Treatment of Lesions of the Biliary Tract."

WISCONSIN

International College of Surgeons.—The Wisconsin Chapter of the International College of Surgeons will meet April 28 for a dinner at 6:15 p.m. and a scientific program at 8 p.m. at the University Club of Milwaukee. Papers to be presented are on the following topics: surgery of the rectosigmoid; diagnostic and therapeutic management of difficult surgical case; repair of large postoperative ventral hernia; fenestration operation for the improvement of hearing; high tension line injury--electric burns, and Wilm's tumor--case report.

GENERAL

Congress of German Internists.—Members of the American Medical Association are invited to attend the Congress of German Internists May 19-21 in Karlsruhe. An attendence of two thousand specialists in internal medicine is expected. Subjects to be discussed at the Congress are "The Vegetative Nervous System," "The Coloring Matter of the Blood" and "Virus Diseases."

Association for Study of Goiter.--The American Association for the Study of Goiter will meet at the King Edward Hotel, Toronto, Canada, May 6-8, under the presidency of Dr. James H. Means, Boston. Among the subjects of the guest speakers, will be the relationship of hyperthyroidism to myasthenia gravis; the hazards and limitations of radioactive isotopes; treatment of hyperthyroidism with radioactive iodine; effect of total thyroidectomy on the function of metastatic cancer of the thyroid, and the surgical treatment of the thyroid disease.

Psychiatrists Appoint Medical Director.—Dr. Daniel Blain, formerly chief of neuropsychiatric services for the Veterans Administration, has accepted the newly established position of medical director of the American Psychiatric Association. Dr. Blain will continue to reside in Washington, D. C. For the present he may be addressed at Georgetown University Hospital, Washington, D. C., or at the executive office of the association, Room 924, 9 Rockefeller Plaza, New York 20. Mr. Austin M. Davies, who has been with the association for fifteen years, will continue as executive secretary, with headquarters in the New York office.

Lippincott Library Award.--The American Library Association Committee on Awards announced that the Joseph W. Lippincott Award for Distinguished library service during 1947-1948 will be given at the association's conference in Atlantic City, N. J., June 13-19. It consists of a $500 gift and a certificate presented by the donor. Names of nominees should be submitted to John M. Cory, chairman, Americal Library Association Committee on Awards, University of California, Berkley, Calif., Mary N. Barton, Enoch Pratt Free Library, Baltimore, Md., or to Ola M. Wyeth, Savannah Public Library, Savannah, by May 15. The award was temporarily discontinued in 1941.

Symposium in Ophthalmology.—A refresher symposium in ophthalmology will be given by Mount Sinai Hospital in affiliation with Columbia University College of Physicians and Surgeons, April 26 - May 22. This will consist of clinical, laboratory and didactic instruction in pathology, embryology, bacteriology, optics, surgery, ophthalmoscopy and other subjects. The class will be limited to eight qualified ophthalmologists. Information may be obtained from the Registrar of Medical Instruction, Mount Sinai Hospital, New York, or from Dr. John B. Truslow, Assistant Deam, Columbia University College of Physicians and Surgeons, New York.

World Health Assembly.--The World Health Assembly, representative of all members of the World Health Organization, will be convened in Geneva, Switzerland, on June 24, under a recent decision made by the Interim Commission, officials of the State Department announce. At present, twenty-two members and eight nonmembers of the United Nations are parties to the constitution of the World Health Organization. As the constitution does not legally come into force until twenty-six members of the United Nations become parties to it, it is hoped that additional nations, including the United States, will join the organization prior to the assembly in June. If the assembly follows the recommendations made by the Interim Commission, the World Health Organization will focus its activities, during the early years on malaria, tuberculosis, venereal diseases, and maternal and child health.

Meeting of Tropical Medicine and Malaria.--The fourth International Congresses on Tropical Medicine and Malaria will be held in Washington, D.C., May 10-18 under the sponsorship of the Department of State. The last meeting of the congresses was in Amsterdam, Netherlands, in 1938. About twenty-five nations will send official delegations. Although no formal invitations have been sent to many of the medical, technical and scientific institutions, societies and organizations throughout the world, the Department of State welcomes all interested professional men and women, including students, to participate. Those who desire to attend should communicate with the Division of International Conferences, Department of State, as soon as possible. To facilitate the program, the meetings will be held in twelve sections as follows: Research and Teaching Institutes, Tropical Climate and Physiology, Bacterial and Spirochetal Diseases, Virus and Rickettsial Diseases, Malaria, Helminthic Diseases, Protozoan Diseases, Nutritional Diseases of the Tropics, Tropical Dermatology and Mycology, Tropical Veterinary Medicine, Public Health, and Medical and Veterinary Entomology. Two evening meetings will commemorate historic discoveries in tropical medicine. The first will celebrate the demonstration by Walter Reed of the mosquito transmission of yellow fever and his admission to the Hall of Fame. The second will commemorate the fiftieth anniversary of the discovery by Ronald Ross of the method of malaria transmission.

National Health Assembly--Oscar R. Ewing, Federal Security Administrator, had a meeting on March 16 of persons he selected to compose an executive committee for the National Health Assembly to be held May 1-4 in Washington, D. C. This committee suggested the number of sections which should compose the assembly and their titles, and agreed on some of the chairmen. The assembly will divide itself into the following fourteen sections: (1) Nation's Need for Medical and Health Personnel; (2) Nation's Need for Hospital Facilities, Health Centers and Diagnostic Clinics; (3) Local Health Units for the Nation; (4) Chronic Disease and the Aging Process; (5) Maternal and Child Health; (6) Rural Health; (7) Research in the Service of Health; (8) Medical Care; (9) State and Community Planning for Health; (10) Physical Medicine and Rehabilitation; (11) Dental Health; (12) Mental Health; (13) Environmental Sanitation, and (14) Nutrition in World Health. The executive committee also approved of a tentative statement of the scope of the sections. A chairman and a steering committee will be appointed for each section.

Mr. Ewing has since announced the formation of a research section of the forthcoming assembly. Dr. Andrew C. Ivy, vice president of the University of Illinois, will be chairman of the research section. While the broad area of the medical research problem will be outlined by Dr. Ivy and the committee preparatory to the convening of the assembly, the specific agenda of the section will not be formulated until its first session.

Dr. Hugh R. Leavell, professor of public health practice, Harvard University School of Public Health, will be chairman of the medical care section of the assembly. In announcing the formation of the section, Mr. Ewing stressed the importance of a thorough analysis of the problem of medical care in terms of need and existing services as they affect the patient, the physician, the hospital administrator and the public health official. Voluntary plans for financing medical care, he said, should be examined for their adequacy in terms of efficiency, quality and coverage of services, and costs within ability to pay

The environmental sanitation section of the assembly will have as chairman Arthur D. Weston, director of sanitary engineering, Massachusetts State Department of Public Health. This section will include leaders in public health and sanitary engineering; scientists in chemistry, biology and allied fields; representatives of milk and food producers, of industry and labor, and farm groups

CORRECTION

Hormonal Test for Fetal Death.--In THE JOURNAL, April 10, in the article by Zondek, Sulman and Black entitled "Hormonal Test for Fetal Death in Disturbed Pregnancy" in the eleventh line, page 968, the words 9 per cent should be 90 per cent.

Foreign Letters

ITALY

(From Our Regular Correspondent)

Feb. 1, 1948.

Meeting of Tuberculosis Association

The Sicilian Tuberculosis Association met in Catania to discuss reports presented by members. Professor Condorelli presented a synthesis of twenty years observation on Tuberculous peritonitis, Circumscribed discrete forms of tuberculous peritonitis were defined as mute. This referred only to syndromes caused by tuberculous and protopathic peritonitis, with mild dissemination, few general manifestations, chronic course and vague abdominal symptoms. Classic pathology was considered of little aid in study of this syndrome. Observations were made and laparotomy performed because of diagnostic errors in cases in which the clinical picture had not been outlined. The symptoms consist in mild rise of temperature. general malaise, variable anemia, and frequent disturbances of organic sensibility and the vegetative nervous system. Abdominal symptomatology is indefinite and consists of functional gastric disturbances and abdominal syndromes. Pronounced sensitivity to pressure along the abdominal aorta, revealing irritation of the lumboaortic plexus is always present.

Professor Meldolesi discussed pulmonary infiltrations whose tuberculous causation could not be demonstrated. He outlined the occurrence of a group of pulmonary lesions which the phthisiologist should know in order to avoid dangerous errors in diagnosis and treatment. So-called fugacious infiltrations must be differentiated from phthisiogenetic infiltrations, three types of which were considered by the speaker. He also discussed permanent infiltration of the type of Besnier-Boeck-Schaumann's disease: with epithelioid cells and giant cells. The etiologic basis for this form is completely obscure; some authors suggest a concept of attenuated tuberculosis and others a leprous origin.

Professor Fici discussed pulmonary tonus and pulmonary neurodystonia as related to an extensive or circumscribed excitability of the vegetative nervous system. Sometimes neurodystonia may be segmental, involving a minimal area. He analyzed the pathogenesis of the different localization of the bronchial murmur in exudative pleurisy, of atelectasis (massive, acute transitory lobar, partial), and of the variations of the volume of the lungs. Of the vascular neurodystonias, Professor Fici referred particularly to hemoptysis. Vasomotor disturbances of the vegetative innervation may be influenced by the action of hormones, meteorologic variations or a concomitant hysteric syndrome. In fulminant hemoptysis the possibility of efficient action of histamine was considered. Mixed myogenetic and vascular neurodystonia may be indistinguishable. Pathogenic mechanisms of some fugacious pulmonary infiltrations may be tied to the changes of the neurovegetative tonus.

Professor Sagona reported on the national, regional, provincial and communal organization campaign against tuberculosis in Italy. Professor Paola discussed the modern points of view concerning surgical collapse therapy insisting that the favorable result of surgical treatment depends directly on the clinical and immunobiologic condition of the patient who is to be operated on and that pulmonary elasticity should be the essential criterion in selection of the type of treatment. Early forms were considered most benefited by immobilization of the lung.

Benign spontaneous pneumothorax as secondary or symptomatic and primary idiopathic groups were discussed by Dr. Fichera.

BERLIN

(From Our Regular Correspondent)

Feb. 26, 1948.

Organization of Scientific Medical Societies

The organization of German scientific medical societies in the Soviet zone has been approved by Order 124 of May 21, 1947, by Marshall Sokolowski. Such societies of specialists (surgeons, gynecologists, internists, etc.) may be organized under the direction of the minister-presidents of the *laender* and provinces in the university cities of Jena, Leipzig, Rostock, Halle and Greifswald and in cities which, including the suburbs, have more than twenty-five specialists in the particular field. The activities of these societies are controlled by the Central Administration of Health and its suborganizations. Each society has to register with the Central Health Organization of the province or land in which the society has its principal place of business. The order also authorizes the president of the German Administration of Health in the Soviet zone of occupation to organize a scientific medical society of specialists at the medical faculty of the University of Berlin and to call conferences and meetings of specialists in the zone. The agenda of such conferences and meetings has to be submitted for approval to the head of the department of the Central Administration of Health, which has jurisdiction over the matter, at least two months ahead of time.

Attached to the order is the text of the by-laws for establishment of these societies, obligatory on all societies which are organized pursuant to the order. In article 1 of the obligatory charter, the purposes of these societies are defined as follows: the promotion of exchange of research in scientific and practical medicine; the promotion of specialized knowledge; the democratization of the German medical science and of the whole scope of medicine and the uncovering of fascist ideologies within the field of medicine and their complete extermination.

Rehabilitation of the Physically Impaired

On Sept. 10, 1947 a meeting of the Zonal Council of Committees for the Rehabilitation of the Physically Impaired took place in Goslar (British zone). These committees consist of representatives of public health and public welfare, specialists in orthopedics and qualified orthopedic mechanics. All problems of aid to the physically impaired, particularly to war veterans, were discussed. Through the zonal council, the securing of materials to make artificial limbs, the necessary business transactions and the distribution of the materials to orthopedic shops and plants will be coordinated in order to make the amputees independent within the shortest possible time. The committees will also arrange for and supervise professional reeducation. Two rehabilitation schools, in Pyrmont and in Malente, are already in operation. More are to follow.

Miscellany

SOCIAL HYGIENE IN THE FORT KNOX EXPERIMENT

More than a year ago the Army established at Fort Knox, Kentucky, a pilot model of universal military training. As Major Gen. John M. Devine has pointed out, the Army realized that the training of young men involves much more than eight hours a day in technical military training; it must assume responsibility for behavior standards and moral welfare. The experimental unit at Fort Knox has been in operation more than a year and about 1,300 young men have completed training. Only 5 cases of venereal disease, 2 of them in married men who contracted the infection from their wives, have developed; yet there is no prophylaxis station in the unit and no issue of prophylactic kits.

Two periods in the training program are devoted to sex hygiene, each being a cooperative effort by the physician and the chaplain. The physician, who speaks to the trainees first, reveals the normal functions of the human body, treats sex in a matter of fact mnnner and discusses the symptoms and after-effects of venereal disease. His instruction emphasizes continence as the only sure preventive of venereal disease.

The chaplain takes up the instruction, discussing the moral law, the dignity of women and their function in the reproduction of the race. His discussion also is matter of fact, open, honest, intelligent and frank. These two periods constitute the whole course in sex hygiene; however, the chaplain is available for consultation with individuals at any time and further group instruction is given if he thinks it is desirable.

Sex instruction comprises only a minor part of the social hygiene program. Adequate athletic facilities exist, and six hours a week are devoted to physical training, two to body building and the other hours to instruction on how to play games. Half of this group of typical American boys did not know the basic rules of any team sport, and 10 per cent of them had never played any team game of any kind. The competitive games are carried at the lowest practical level. Competitive athletics which take place every Saturday afternoon have been surprisingly successful in keeping boys in camp over the weekend. Citizens of Louisville and Elizabethtown have invited trainees to their homes and have done a magnificent job in providing and chaperoning young ladies for dances. After four weeks of training in camp, trainees may, under certain conditions, go to town, but they must stay at the Service Club or at an approved home. Although Louisville is " wet" it is an offense in Kentucky, as in most states, to sell liquor to minors and all trainees wear an identifying patch which shows that they are under 21 years of age. Letters were written to every bartender in the city asking them not to sell liquor to any one who wears this patch because that person is a minor. The bartenders have cooperated in this respect.

The most important step in the social hygiene program is the general attempt to raise the moral tone of the organization, to establish standards of behavior and manners that will be a credit to the unit, to encourage the decent against the indecent and the good against the bad. In summary of the program the general said that all this is based on the warm belief that the average American boy of 18 is essentially sound, that he is instinctively decent and that he will do the right thing if he knows what it is.

Medical Motion Pictures

FILM REVIEW

Occupational Health Problems. 16 mm., color, sound, 1,500 feet (one reel), showing time thirty-eight minutes. Prepared in 1947 in cooperation with the American Association of Industrial Physicians and surgeons, Brooklyn Industrial Health Committee, Industrial Health Service of Brooklyn Tuberculosis and Health Association, and others through a grant for instruction by the DeVilbiss Company. Producedbyandprocurable from the Medical Film Guild, 167 West Fifty-Seventh Street, New York 19.

As the film opens, the narrator begins to talk while the observer is trying to read titles. One is impressed that, due to the lack of proper health supervision, over 400,000 man days are lost each year in industry and one-fifth are preventable. The following subjects are included: (1) the penny plan for health education in industry; (2) the technic of preemployment examination; (3) technic of tuberculosis surveys; (4) aerosol therapy and asthma; (5) nutrition in industry; (6) treatment of the common cold; (7) absenteeism in industry; (8) treatment of burns, and (9) industrial hygiene problems. This last phase of the film was produced under the direction of the Department of Industrial Hygiene, State of Illinois., using typical problems created by Chicago's industrial plants. (10) Comparative costs of an industrial hygiene department versus that resulting from compensation. This demonstrates some of the advantages of an industrial health program.

In one scene the right hand of a patient is shown; however, the narrator states "this left hand was caught in a machine." The film has a number of good points. Its general conception of the scope and nature of occupational health is sound, although more dramatic presentation might have been used. Much of the early footage is given over to charts and similar details; however, there is not sufficient time to digest this material. The photography is excellent, particulary those sections on treatment of burns and of asthma which, although they reflect the sponsor's interest, are not distinctively occupational health problems. The film is not regarded as up to professional levels. It might be quite useful as a general introduction to those who are not familiar with the subject.

Abdominal Tube Pedicle Graft to Lower Extremity via Wrist. 16 mm., color, silent, 500 feet (one reel), showing time twenty minutes. Prepared in 1947 by, and procurable on loan from, George A. Friedman, M.D., 111 East Sixthy-First Street, New York 21.

The purpose of this motion picture is to clarify a grafting operation. It illustrates the formation, migration and inlay of the abdominal tube pedicle. The film utilizes motion and still inserts to record the shifting of tubed pedicle flaps from the body to the arm and then to the lower extremity. The contents of this picture comprise a composite of many cases, emphasis being placed on procedure rather than on a single case. In one patient a lesion which is somewhat difficult to make out is shown and one or two immediate final stages are illustrated. Generally speaking, the photography is poor. Several colored still photographs have been copied and interspersed throughout the film. The titles are clear. This production could be shown to audiences unversed in plastic surgery to illustrate one of the more tedious processes required.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American Journal of Diseases of Children, Chicago

74:657-786 (Dec.) 1947

*Relation of Lesions of Tongue in Children to Niacin Deficiency. H. Bakwin, H. S. Reardon, J. S. Winn and others.—p. 657.

Basal Metabolism of Children with Tumors. Anne Topper.—p. 669.

Hyperosmolarity and Hyperelectrolytemia in Pathologic Conditions of Childhood. S. Rapoport.—p. 682.

Comparison of Axillar and Intraperitoneal Inoculation with Calmette-Guerin Vaccine. Y. Yamaoka and K. Okayasu.—p. 703.

*Gonococcic Vaginitis in Children Treated with Single Injection of Penicillin in Beeswax and Peanut Oil: Report of 20 Cases. B. G. Clarke and H. H. Eisenberg.—p. 707.

Scarlet Fever Immunization: Report on Reversal of Reactions to Dick Test Through Use of New Type of Antigen. Lavinia G. MacKaye and E. H. Watson.—p. 711.

Aid to Interpretation of Changes in Cerebrospinal Fluid in Pediatric Cases. K. H. Beck and B. P. Clark.—p. 714.

Serum Iron Levels in Adolescent Girls: Study of 3 Cases. Frances A. Johnston.—p. 716.

Tongue Lesions and Niacin Deficiency.—From 1942 to 1945 60 children with lesions of the tongue were observed at Bellevue Hospital by Bakwin and his associates. Four types of lesions were observed: acute glossitis; glossitis migrans, or geographic tongue; mild swelling of the tongue, and fissures of the tongue. Effect of large doses of niacinamide (nicotinamide U.S.P.) (8 to 20 mg. per kilogram of body weight) were studied, and results were compared with those for an untreated group. Acute glossitides improved spontaneously or after chemotherapy. Of the patients with swollen and fissured tongues who were treated with niacin (nicotinic acid U.S.P.) a larger proportion showed improvement (14 of 17) than was observed among patients who received no therapy (4 of 16). In no patient was complete cure effected, although treatment was continued in 2 patients for twenty-six months. Glossitis migrans was unaffected by nicotinamide therapy. Diets of children with changes of the tongue were not demonstrably different from the diets of children without such changes. Results support the view that nicotinic acid has a favorable influence on the nutrition of the tongue. They fail to substantiate the view that the lesions of the tongue commonly seen in children are due to nicotinic acid deficiency.

Penicillin in Gonococcic Vaginitis.—Clarke and Eisenberg treated 20 Negro girls from 2 to 10 years of age, who had uncomplicated, previously untreated gonococcic vaginitis, at the Chicago Municipal Social Hygiene Clinic. Purulent or mucopurulent vulvovaginal exudate was present in each patient with local inflammatory signs of varying degree. At least one smear of the vaginal secretion showed typical gram-negative intracellular diplococci *before* treatment. Children were treated with a single intramuscular injection of 100,000 or 200,000 units of penicillin in beeswax and peanut oil, with prompt clinical and bacteriologic remission in each case. An apparent recurrence after one hundred and twenty-two days, cured by retreatment, was considered to be a reinfection. Untoward reactions to treatment were not observed.

Archives of Pathology, Chicago

44:563-676 (Dec.) 1947

Quantitative Estimation of Fibrous Tissue in Pathologic Livers. S. Warren and P. N. Wahi.—p. 563.

*Preinvasive Carcinoma of Cervix Uteri: Seven Cases in Which It Was Detected by Examination of Routine Endocervical Smears. E. R. Pund, H. E. Nieburgs, J. B. Nettles and J. D. Caldwell.—p. 571.

Rare Anomaly of Vermiform Appendix: Mucous Lining of External Surface. S. Mahrburg.—p. 578.

Primary Atypical Pneumonia: Report of 8 Cases with Autopsies. F Parker Jr., L. S. Jolliffe and M. Finland.—p. 581.

Intra-Articular Changes Induced in Rabbits by Injection of Typhoid Somatic Antigen. H. R. Morgan and G. A. Bennett.—p. 609.

*Fibrosis Uteri. R. Shoemaker and J. E. Kahler.—p. 621.

Parathyroid Adenoma with Generalized Metastatic Calcification. M. O. Young and B. Halpert.—p. 628.

Reticuloendothelial Cells Reacting to Toxic Antigens and to Infection. P. *Bueno.—p. 635.*

Nucleolar Substance in Anterior Lobe of Human Pituitary Gland. C. Cavallero.—p. 639.

Improved Method for Handling Photolabile Liquids. J. Nichols.—p. 646.

Detection of Preinvasive Carcinoma by Smears.—According to Pund and his associates incipient cancer of the cervix uteri is usually noninvasive. Adequate therapy in this phase should result in cure in 100 per cent of the cases. The endocervical smear stained according to the method of Papanicolaou offers the best routine method of detecting neoplastic cells of the cervix in their preinvasive phase. The diagnosis must be confirmed by biopsy or endocervical curettage. A study of routine endocervical smears has enabled the authors to detect 7 cases. Biopsy of two or more sites should be carried out, exercising care to choose the proper sites—the endocervical junction at the external os.

Fibrosis Uteri.—Shoemaker and Kahler point out that the criteria for the diagnosis of fibrosis uteri have never been clearly defined and its existence as a separate entity has been denied by some. The surgeon who has made a preoperative diagnosis of uterine myoma or adenomyosis may encounter at operation a symmetric, slightly enlarged uterus. This type of uterus gives rise to menorrhagia. In order to determine whether the disease is a clinical entity, fresh uteri received from the surgery division were inspected, measured and opened along the middle of the anterior surface. The organ was then halved by continuing the incision, and a block of tissue was removed to represent the full width of the uterus. Twenty-seven uteri with fibrosis and 28 control uteri were studied. The control group consisted of necropsy and surgical specimens which were normal or contained leiomyomas, adenomyosis or endometrial polyps. The 27 cases of fibrosis uteri were found among a total of 245 uteri. The patient with fibrosis uteri has a history of profuse menorrhagia without metrorrhagia and usually without dysmenorrhea. On pelvic examination the uterus is symmetrically enlarged. The excised uterus is a slightly to moderately enlarged organ. The myometrium is pale, finely textured and thickened, with increased consistency. On microscopic examination an increase of fibrous tissue is observed in the submucous layer of the myometrium, appearing as an increase of both the interfascicular and the intrafascicular connective tissue. This study does not reveal the exact causation or pathogenesis of the lesion but does provide evidence that it is not an end stage of chronic metritis, that hypertrophy of muscle fibers plays a minor role and that it is not a form of subinvolution of the uterus. The authors conclude that fibrosis uteri may be considered a fairly well delimited clinical and pathologic entity. The lesion consists of fibrosis of the myometrium.

Archives of Physical Medicine, Chicago

29:1-58 (Jan.) 1948

Medical Research. A. C. Ivy.—p. 7.

Studies Concerning Effect of Deep Tissue Heat on Blood Flow. C. R. Kemp, W. D. Paul and H. M. Hines.—p. 12.

Effect of Diathermy on Blood Flow: Plethysmographic Studies. C. S. Wise.—p. 17.
*New Devices for Disability Evaluation: I. Hand, Wrist, Radioulnar, Elbow and Shoulder Ergographs. F. A. Hellebrandt, Helen V. Skowlund and L. E. A. Kelso.—p. 21.
Dynamic Aspects of Physical Medicine in Veterans Administration. A. B. C. Knudson.—p. 29.
Biologic and Physiologic Effects of Ultraviolet Radiation. E. E. Gordon.—p. 36.
Tracing Device for Surface Lesions. L. B. Newman.—p. 42.

Evaluation of Disability.—Hellebrandt and associates state that the upper extremities are used in nearly all occupational pursuits. Deformities, injury or disease affecting the power of the muscles reduce man's ability to work. When this occurs grave economic problems related to the adjudication of compensation claims arise. A series of self-contained, ink-writing ergographs have been developed for the appraisal of the functional capacity of the major articulations of the upper extremity. Preliminary trial with these instruments suggests that work tolerance may be estimated with greater accuracy ergographically than by judgment of the examining physician and that ergography may be clinically useful in disability evaluation, because it provides a simple quantitative tool by virtue of which the following measurements may be made: (1) initial functional capacity; (2) progress under treatment; (3) the end point of effective rehabilitation, and (4) the degree of residual disability.

Arkansas Medical Society Journal, Fort Smith

44:181-198 (Jan.) 1948

Cancer of Stomach. J. D. Hayes.—p. 181.
*Tularemia in Arkansas. R. H. Rigdon and C. R. Chesnutt Jr.—p. 183.

Tularemia in Arkansas.—Rigdon and Chesnutt review 26 cases of tularemia at the University Hospital in Little Rock from 1940 to 1946. There were 18 cases of the ulceroglandular type, 3 of the pneumonic form and 2 each of the oculoglandular and typhoid types; 1 case was unclassified. Cases are presented to illustrate each of the four types of infection. In most of the cases treatment was with sulfonamide drugs. Now streptomycin is the drug of choice in the treatment of tularemia.

Bulletin of Johns Hopkins Hospital, Baltimore

82:1-80 (Jan.) 1948

*An Anti-Rh Antigen-Antibody Reaction Factor (the Rh Protective Factor): Preliminary Report. A. Bloxsom and Rose Matthaei.—p. 1.
Psychotherapy in General Medical Practice. J. C. Whitehorn.—p. 10.
Resistance of Young Rabbit to Diabetogenic Effect of Alloxan. C: S. Schultz and J. R. Duke.—p. 20.
Malignant Tumors of Nasopharynx. T. E. Van Metre Jr.—p. 42.
*Treatment of Miliary Tuberculsois with Promizole. Edith M. Lincoln, S. Stone and Olga R. Hoffman.—p. 56.

Rh Protective Factor.—Bloxsom and Matthaei reported in an earlier article an infant with erythroblastosis fetalis who accidentally received a massive transfusion of Rh-negative blood. Since the course of the hemolytic disease of this infant was favorably altered by the large transfusion, the possibility was suggested that an Rh-negative donor's serum might possess some factor that suppressed or inhibited the Rh antigen-antibody reaction. If this is true, the serum of Rh-negative donors should be of as much value in transfusions into infants with erythroblastosis fetalis as the Rh-negative red blood cells. The present study was undertaken to determine whether this factor could be demonstrated in Rh-negative blood serums. The serums of the Rh-negative bloods employed in these studies have been shown to contain an anti-Rh antigen-antibody reaction factor that inhibits the Rh antigen-antibody reaction. The serums of the Rh-positive bloods have been shown to contain no anti-Rh antigen-antibody reaction factor except for the small amount found in one man who is heterozygous. This anti-Rh antigen-antibody reaction factor is a specific inhibiting substance for the Rh reaction. The natural occurrence of this anti-Rh antigen-antibody reaction factor serves as a vital protective means for Rh-negative persons and for infants subject to hemolytic disease of the newborn. It is believed that the serum of Rh-negative blood is probably even more valuable than its cells for the transfusion of infants with erythroblastosis fetalis due to anti-Rh agglutinins. The males tested showed in their blood serums greater amounts of this anti-Rh antigen-antibody reaction factor. It is possible that blood from such donors will be more effective in the treatment of hemolytic disease of the newborn. It is hoped that the use of suitable Rh-negative blood and blood serums at regular intervals before delivery may result in the salvage of a larger number of those infants. The presence of the anti-Rh antigen-antibody reaction factor in the serums of Rh-positive males may point to the fact that those males are heterozygous.

"Promizole" in Miliary Tuberculosis.—Lincoln and his associates tried "promizole" (4,2'-diaminophenyl-5'-thiazolylsulfone) first in that form of tuberculosis which has the worst prognosis. They treated 5 successive patients with meningitis without beneficial effects. Acute generalized hematogenous tuberculosis was then selected for treatment with the drug because the course of this disease is more prolonged than that of meningitis, thus allowing more time for action of a drug. The authors have employed "promizole" in 11 children with acute miliary tuberculosis. All showed evidence of primary pulmonary tuberculosis as well as mottling of miliary or slightly larger size throughout both pulmonary fields. Three of these patients have been treated for less than six months, and although all are doing well it is too early to evaluate results of therapy. Three patients were treated for less than a month. Five consecutive patients with acute generalized miliary tuberculosis were apparently adequately treated with "promizole." Of these, 2 children died forty-three days and four and one half months, respectively, after therapy was begun. Three children showed complete recession of roentgenologic evidence of miliary tuberculosis and are alive thirty to thirty-three months after the drug was first given. In these patients who survived acute miliary tuberculosis the primary pulmonary lesions cleared slowly and in 2 cases went on to cavitation. In 1 case roentgen evidence of the primary focus is still present. One child developed tuberculosis of the spine, choroiditis and positive urine cultures for tubercle bacilli while taking the drug. All 3 patients are still receiving maintenance doses of "promizole." The drug is goitrogenic and has a stimulating effect on secondary sexual characteristics, causing enlargement of nipples and mammary tissue and growth of pubic hair. Toxic effects which would require permanent discontinuance of the drug were not observed.

California Medicine, San Francisco

68:1-56 (Jan.) 1948

Bleeding Nipple as Diagnostic and Therapeutic Problem. I. MacDonald.—p. 1.
Painful Breast. J. M. Neil.—p. 5.
Diagnosis of Early Breast Cancer. W. D. McCarthy.—p. 7.
Place of Radiation Therapy in Management of Breast Cancer. L. S. Goin.—p. 11.
Management of Inoperable Cancer of Breast. E. Reynolds.—p. 14.
Rural Medical Care and Hospitalization. C. B. Andrews.—p. 16.
Oral Substitution Therapy with Benzestrol for Patients with Estrogen Deficiency. F. E. Harding.—p. 20.
"Warts". H. J. Templeton.—p. 23.
Overlooked Foreign Body in Tracheobronchial Tree: Case Report. M. E. Childress, P. C. Samson and D. J. Dugan.—p. 25.
Ureteral Reflux. J. Steinberg.—p. 27.
*Leukonychia. D. W. Montgomery.—p. 29.
Does Milk "Make Mucus"? R. M. Moose.—p. 31.
Further Study of Pneumonia in San Francisco, 1944-1946. G. F. Warner and F. H. Gardner.—p. 32.
Cause for Reestablishment of Communication Following Ligation of Patent Ductus Arteriosus. C. E. Rees.—p. 35.
Cancer of Lip. I. MacDonald.—p. 37.

Radiation in Cancer of the Breast.—According to Goin, clinical stage 1 cancer of breast means that the tumor seems to be limited to a lobule of mammary tissue, that the skin is uninvolved and that no axillary or supraclavicular nodes are palpable. Pathologic stage 1 means that no carcinomatous cells could be found in the tissue removed. Clinical stage 2 carcinoma means that the skin is involved or that palpable nodes are present, or both. Pathologic stage 2 means that the skin was infiltrated or that metastases to glands were demonstrated, or both. Stage 3 cancer of the breast indicates the presence of distant metastases. The author thinks that stage 1 mammary carcinoma should not be irradiated but should be treated by radical mastectomy. Stage 3 carcinoma of the breast should be treated entirely with irradiation. Stage 2 cancer of the breast should be treated by radical mastectomy plus postoperative irradiation. There is little to lose and perhaps much to gain by the castration of menstruating women who have cancer of the breast.

Leukonychia.—Montgomery points out that white spots on the nails are especially frequent in young women and are observed more frequently on the fingers than on the toes. Injury, particularly that incident to manicuring, may play a part in the development of some of the white spots and streaks. They may occur as the result of severe fever. White stripes or cross ridges have been observed corresponding to severe attacks of typhoid or typhus or other fevers, and 1 case has been reported in which each attack of relapsing fever was followed by a leukonychia stripe. Nerve lesions may cause white stripes on the nails; they are frequent in the neurotic person; they concur with constipation, indigestion and acne, and they may have some connection with the menstrual period. Poisons such as arsenic or alcohol may play a part in the development of white spots and stripes in the nails. Often leukonychia *indicates a more or less grave, persistent state* of ill health.

Journal of Nutrition, Philadelphia

34:603-766 (Dec.) 1947. Partial Index

Observations on Beef Cattle Affected with Generalized Edema or Anasarca Due to Vitamin A Deficiency. L. L. Madsen and I. P. Earle. —p. 603.

Nutritive Value of Canned Foods: XXV. Vitamin Content of Canned Fish Products. J. B. Neilands, F. M. Strong and C. A. Elvehjem. —p. 633.

Influence of Pteroylglutamic Acid (Member of Vitamin M Group) on Gastrointestinal Defects in Sprue: Study of Interrelationships of Dietary Essentials. W. J. Darby, E. Jones, H. F. Warden and Margaret M. Kaser.—p. 645.

*Effects of Caloric Restriction on Skeletal Growth. P. Handler, G. J. Baylin and R. H. Follis Jr.—p. 677.

*Effect of Added Thiamine on Growth, Vision and Learning, Using Identical Twins. E. C. Robertson, C. M. Tatham, Norma F. Walker and M. R. Weaver.—p. 691.

Nutritional Studies on Milk Fat: III. Effect of Treatment of Milk Fat with Certain Solvents on Growth of Young Rats. E. L. Jack and E. B. Hinshaw.—p. 715.

Caloric Restriction and Skeletal Growth.—Handler and his co-workers found that the rate of skeletal growth in young rats was roughly proportional to the rate of general body growth when caloric restriction was the factor limiting growth. Restriction of caloric intake to about one half of that of control animals fed ad libitum resulted in a complete cessation of both skeletal and generalized body growth. Histologically the bones of such animals were identical with those usually found in "partial inanition." In larger, not quite completely grown rats, caloric restriction sufficient to cause a loss of 40 per cent of their initial body weight only slightly decreased the rate of skeletal growth. The plasma concentration of calcium was normal in all animals, while that of inorganic phosphate was below normal in the young caloric-restricted animals but not in the older rats.

Effect of Added Thiamine in Twins.—Robertson and his associates found that administration of 2 mg. daily of thiamine for four and one-half months to half of thirty-six pairs of identical twins resulted in improvement in weight and height gains and in manual dexterity and prolonged memory test scores that were of questionable statistical significance. The tests used for measuring vision, intelligence, reasoning, arithmetic, rote memory and code substitution gave results without statistical significance. Twenty-five pairs of the twins were kept in the study for four and one-half months longer. When they were again tested at the end of this period, that is, after nine months of therapy, no gains of statistical significance were evident in any of the tests.

Review of Gastroenterology, New York

15:1-100 (Jan.) 1948

Diagnosis of Prepyloric Lesions in Stomach. H. A. Osgood.—p. 11.

*Experience with Papanicolaou Stains of Gastric Contents. J. P. Campbell and H. A. Grimm.—p. 21.

Some Observations on Effect of Synthetic Folic Acid on Alimentary Tract of Patients with Tropical Sprue. F. Milanes, T. D. Spies, R. H. Beguerie and G. G. Lopez.—p. 33.

Teaching Comprehensive Gastroenterology. G. S. Stevenson.—p. 44.

Chronic Focal Infection—Gastroenterologic Problem. J. W. Wiltsie. —p. 50.

Carcinoma of Large Intestine. Review of Personal Experience in Private Practice. A. O. Wilensky.—p. 55.

Papanicolaou Stains for Gastric Contents.—Campbell and Grimm studied the cell structure of gastric contents by means of the Papanicolaou method of preparing and staining slides. Gastric contents of 200 patients were examined: 28 had gastric, duodenal or gastrojejunal ulcers; 2 had pernicious anemia; 1 had gastric polyps; 1 had carcinoma of the pancreas; 5 had disease of the biliary tract; 7 had carcinoma of the stomach, while the balance were controls or patients with disease of the lower part of the gastrointestinal tract. The authors realize that the possibilities of this method for detecting or at least suspecting early gastric carcinoma cannot be completely determined without the lapse of more time to follow up the patients covered in this study. A subsequent comparison of slides of their gastric contents with those now on hand, especially in those that later have cancer of the stomach, will be necessary. The Papanicolaou stained smear offers promise of confirming a diagnosis of cancer of the stomach in cases in which the lesion has advanced to the point where it can be diagnosed by roentgen ray. Of 5 cases of carcinoma of the stomach in which the authors were able to obtain the surgical or autopsy specimen, they were able to demonstrate cancer cells in 4. Cancer cells were found in 1 of 2 patients in whom the diagnosis had been established clinically; the other case was one of linitis plastica, in which a study of the gastric contents may never be productive. The Papanicolaou stained smear of gastric contents is a relatively simple procedure. It is inexpensive to conduct. It is adaptable to studying large numbers of patients with a minimum of inconvenience and expense.

Urologic & Cutaneous Review, West Palm Beach, Fla.

51:621-668 (Nov.) 1947

Parageusia as Symptom of Genitourinary Disease. B. S. Abeshouse and S. Lerman.—p. 621.

Urinary Incontinence Following Transurethral Resection with Special Reference to Nonsurgical Treatment. J. A. Lazarus and M. S. Marks. —p. 626.

Management of Azotemia Due to Obstructive Calculous Disease. C. P. Mathe.—p. 630.

Vulvitis Due to Stress Urinary Incontinence. J. W. Davies.—p. 635.

Lower Nephron Nephrosis: Complication of Transurethral Prostatic Resection. S. S. Baird and H. M. Spence.—p. 642.

Unusual Primary Urethral Calculus: Case Report. C. S. Fromm.—p. 646.

Metastatic Retroperitoneal Tumor from Undescended Testicle. J. I. Farrell and R. L. Atkinson.—p. 646.

Delayed Nephrectomy in Acute Stone Pyonephrosis. H. A. Levin. —p. 648.

Contribution to Etiology, Diagnosis and Therapy of Pemphigus. D. I. Macht and M. Ostro.—p. 651.

Etiology, Diagnosis and Therapy of Pemphigus.—According to Macht and Ostro, the blood serum of patients with true pemphigus exhibits a specific phytotoxicity on the root growth of Lupinus albus seedlings, which is not exhibited by the serums of most other dermatoses (Pels-Macht or Macht-Pels test). This toxic reaction of the serum of patients with pemphigus is diminished or completely destroyed by exposure to specially filtered roentgen rays, while serums from patients with other dermatoses are not affected by such rays (Macht-Ostro reaction). The two tests performed simultaneously lead to a reliable differential diagnosis of pemphigus. As suggested by these observations, deep roentgen irradiation was performed on 10 patients, 6 men and 3 women between the ages of 45 and 68 and 1 young woman with pemphigus. The rays were filtered through 1 mm. aluminum and 2 mm. copper. The dosage varied from 43 r to 86 r measured in air. A rest period of two or three days was usually given between each treatment and seldom were more than three treatments made in close succession. Detoxification of the blood serums of all patients resulted as determined by the phytopharmacologic test. This was accompanied by definite clinical improvement and remission in 7 of the patients with a permanent remission or cure in 2. The young women with fulminating pemphigus vulgaris and 1 middle-aged man with pemphigus foliaceus did not improve clinically and died. A third patient with extensive pemphigus vulgaris showed some slight clinical improvement but is now rapidly approaching the end. The last 2 patients were treated with rays filtered not through 2 mm. copper but through 0.5 mm. copper. Further investigation of the clinical *therapeutic possibilities* of radiotherapy for pemphigus as checked or controlled by phytopharmacologic tests is suggested.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London
20:489-540 (Dec.) 1947. Partial Index

Symposium on Carcinoma of Stomach:
  Carcinoma of Stomach: A Radiologist's Point of View. J. L. A. Grout.—p. 491.
  Gastroscopy in Diagnosis of Gastric Cancer. H. W. Rodgers.—p. 502.
  Cancer of Stomach: Some Pathologic Considerations. M. J. Stewart.—p. 505.
  Surgical Aspect of Carcinoma of Stomach. H. Taylor.—p. 507.
Association of Achalasia of Cardia with Esophageal Carcinoma. P. Baer and K. Sicher.—p. 528.

Edinburgh Medical Journal
54:529-592 (Oct.) 1947. Partial Index

Vagotomy in Treatment of Peptic Ulcer. C. F. W. Illingworth and A. W. Kay.—p. 540.
Anatomic Evaluation of Operations for Hypertension. G. A. G. Mitchell.—p. 545.
*Some Results in Treatment of Lupus Vulgaris by Calciferol. T. E. Anderson.—p. 562.
Prognosis in Pulmonary Tuberculosis. R. Fraser.—p. 566.

Evaluation of Operations for Hypertension.—Mitchell says that although the cause of hypertension is uncertain, the main surgical attack has been directed against peripheral sympathetic structures. To cover various etiologic possibilities a blunderbuss technic has been evolved requiring extensive autonomic ablations. Different surgeons have differing ideas about what they wish to achieve, and these varying views are reflected in their operations. Nearly all wish to produce vasodilatation in the abdominal splanchnic area, and in addition most believe that a degree of somatic vasodilatation is desirable. The author reviews various types of operations and suggests that certain of the failures may be explained on anatomic grounds. It is shown that the Peet, Allen-Adson and Smithwick procedures may not interrupt all the sympathetic fibers to the abdominal splanchnic area or to the kidneys and adrenals. Aortic and esophageal filaments arising from the sympathetic trunks or splanchnic nerves above the levels of section, paraaortic nerves (when present) and sympathetic fibers in the phrenic nerves, esophageal plexuses or vagal trunks may all reach the abdomen and may escape interruption in these sympathectomies. Section at the level of the second lumbar ganglion may miss renal contributions arising from the sympathetic trunks below that level and may not interrupt communicating fibers between the renal plexus and the superior spermatic, gastroduodenal or intermesenteric nerves. It is suggested that the optimum sympathectomy for hypertension is bilateral resection of the sympathetic trunks from the fourth thoracic ganglion to the third lumbar ganglion and removal of the splanchnic nerves.

Calciferol in Lupus Vulgaris.—Anderson says that in the past year 71 cases of lupus vulgaris (19 males and 52 females) have been treated with calciferol (vitamin D_2) at the Aberdeen Royal Infirmary. Eighteen of the patients are either still undergoing treatment or have defaulted. One patient died. In this patient calciferol treatment had been interrupted on account of toxic symptoms. A course of treatment has been completed in 52 of the patients. Of these, 41 were apparently cured and 8 were greatly improved but doubtful; the remaining 3 were apparently cured at the end of a six months' course of treatment but are relapsing and require further treatment. Calciferol was the exclusive treatment in 39 of the 52 patients; in the other 13 some adjuvant treatment was used, such as intradermal chaulmoogra oil esters, carbon dioxide snow or the Kromayer lamp. The duration of calciferol treatment varied from two and one half to eight months (average 6.1 months). The usual dosage of calciferol was 50,000 international units three times daily by mouth in cases in which this dosage was tolerated. In most cases this has been reduced to 100,000 units a day after three months; but in some instances 150,000 units have been administered daily for a full six months. A rise of the serum phosphate level seems to be a more reliable index to early intoxication than the calcium level. Toxic symptoms appeared in 32 of the patients, but subsided. The results obtained with calciferol are superior to those formerly obtained by other methods.

Revue Neurologique, Paris
79:481-560 (July) 1947

Special Intermediary Type Between Thomsen's Disease and Myopathia: Contribution to Study of True Muscular Hypertrophy in Progressive Muscular Dystrophia. L. Rouquès, P. Guilly, J. Pautrat and J. Lapresle.—p. 481.
*Vegetative Hypertrophic and Atrophic Sciatic Neuralgia. V. Pitha.—p. 491.

Vegetative Sciatic Neuralgia.—Pitha reports 15 cases of vegetative hypertrophic and atrophic sciatic neuralgia, a syndrome associated with hernia of the intervertebral disk and classic funicular sciatica and with certain cases of the Guillain-Barré syndrome and neuritis. This vegetative sciatic neuralgia of rheumatic origin is to be considered a new clinical entity different from that of classic sciatica (Cotugno's disease). This atrophic and hypertrophic sciatica is characterized by a certain type of pain. Except for the initial dramatic attack of pain, it is relatively mild, always tolerable, sometimes burning and occasionally diffuse, particularly in the area of the calf. The muscle group involved is severely and diffusely painful on palpation, in contrast to a mild or absent Lasègue's sign. In the initial acute stage of the disease there may be present occasionally the classic signs of sciatic radiculitis, and the term "total neuralgic phase of vegetative sciatica" is suggested for it; the hypertrophic type may often be associated with intense pain in the lumbar region and in the abdomen. The muscular changes occur slowly after the acute stage, and they characterize the chronic stage. There are no real disturbances of motility, and muscular weakness may occur only after a prolonged walk. The muscular changes are diffuse and involve the entire limb. The upper half of the calf is particularly affected, and hypertrophy of the thigh may be associated with atrophy of the leg in the same patient. There are no fibrillary tremors. The muscle tonus is increased in the hypertrophic form and diminished in the atrophic form. The idiomuscular excitability is mildly and regularly diminished in the hypertrophic and in the atrophic sciatica. In general there are no changes in the tendon reflexes in both forms. The course of the atrophy is a slow one, sometimes of several years' duration, but the hypertrophic form develops in several months. These muscular symptoms are to be considered as the most important clinical aspect of the direct vegetative innervation of muscles. It may be safer to explain the common sciatic changes on the basis of a vegetative pathogenesis of the muscular changes than on one of inactivity.

Wiener medizinische Wochenschrift, Vienna
97:533-556 (Dec. 20) 1947. Partial Index

Determination of QT Interval in Electrocardiogram. W. Wolf.—p. 533.
*Problem of Decapsulation of Kidneys in Acute Anuresis. W. Pilgerstorfer.—p. 535.

Decapsulation of Kidneys in Anuresis.—Pilgerstorfer treated 1 man aged 23, who had acute nephritis associated with anuresis, by unilateral removal of the renal capsule. Previous conservative treatment consisting of two days of fast and then a diet of dried, uncooked fruits. Intravenous injections of strophanthin and dextrose and short wave radiation had proved ineffective in promoting the secretion of urine. Considerable amounts of urine were passed within a few hours after the surgical intervention. In seven postoperative days the secretion of urine amounted to about 34 liters, 14 of which were excreted in the first thirty-six hours. Simultaneously the residual nitrogen, which before the operation had been increased to 197.4 mg. per hundred cubic centimeters, was restored to normal as were the blood pressure, the specific gravity of the urine and the function of the kidneys. The lightning, lifesaving result of the unilateral decapsulation in this case suggests that the operation should be performed in cases of acute nephritis in which, in the absence of severe histologic changes in the glomeruli, anuresis may result from the mechanical compression of the highly edematous kidney by the tight capsule. The liberation of the kidney from the compressing capsule may be compared to the flood of water which has been dammed up in a reservoir and which pours out after the removal of the obstruction. Due to the diuresis resulting in the decapsulated kidney the swelling in the other kidney also subsides and both kidneys resume their function. In contrast to this, diuresis will not take place even from bilateral decapsulation in cases of severe subacute glomerulonephritis associated with extensive extracapillary proliferation.

Book Notices

Viruses. By Max A. Lauffer, Ph.D., Associate Research Professor of Physics, the University of Pittsburgh, Pittsburgh. From the Twentieth Annual Priestly Lectures. Sponsored by Phi Lambda Upsilon Honorary Chemical Society. Paper. Pp. 62, with 42 illustrations. Pennsylvania State College, State College, Pennsylvania, 1946.

This volume contains five chapters which served as the twentieth annual Priestly lectures. The subjects chosen by the author, who is an associate research professor of physics of the University of Pittsburgh, are largely concerned with biophysical properties of certain viruses which have become available in large enough quantities and in states reasonably pure enough to warrant biophysical analyses.

The first lecture deals with "viruses as molecules"; the fourth considers "viruses as organisms." This in itself does not imply a contradiction, since it becomes more and more obvious that a variety of agents are included at present under the heading of viruses. The second and third lectures are entitled "the size and shape of viruses" and "the disintegration of viruses," whereas the last considers "viruses and human welfare."

The experimental data quoted, of which a sizable share involves the author's work, are concerned to a large extent with plant viruses, tobacco mosaic virus in particular, and the influenza viruses. The biophysical apparatus used in the study of the various properties of the agents is briefly described in the corresponding sections, and the theories and limitations of the technics are adequately discussed. Thus it is possible for those less well versed in biophysical technics to follow the line of thought without difficulty, which renders this volume valuable to those interested in the virus field in general.

The last lecture sums up some of the better known facts about the profound influences exerted by virus infections of plants, animals and man on the course of history and man's efforts to overcome these scourges. Some of them have been practically eradicated; other attempts led to encouraging results. Some of these have been overrated by the author, and to link biophysical studies with the conquest of certain virus diseases seems somewhat forced. To quote: "Yet who ever could have dreamed that the crystallization of urease and of pepsin would open the way for the conquest of influenza?"

Practical Obstetrics. By Bruce T. Mayes, M.V.O., M.B., B.S., Professor of Obstetrics, University of Sydney, Sydney. Cloth. Price, 57s. 6d. Pp. 306, with drawings by Vergil Lo Schiavo, B.A. The Australasian Publishing Co., Pty. Ltd., Bradbury House, 55 York St., Sydney, N. S. W.; 182 High Holborn, London, W. C. 1, 1947.

It was the author's intention not to write a textbook but to present a number of practical clinical discussions in a form that will preserve the atmosphere of a doctor's office, an operating room or the bedside rather than that of the lecture hall. In this the author has succeeded admirably, for his style of presentation is delightfully informal and most unusual in a book dealing with medicine. Of the twenty-two chapters in the book, eighteen are devoted to obstetrics, two to sterility, one to artificial insemination and the last one to "Queries and Views."

The first chapter deals with postpartum hemorrhage, and this is proper because hemorrhage is the most important cause of maternal mortality. Throughout the book the author demonstrates his vast experience in obstetrics. He is ultra-conservative, yet he has not failed to accept all that is progressive in obstetrics. He illustrates and describes the use of episiotomy, direct local anesthesia and the low cervical cesarean section. He also takes up the matters of the Rh factor and rubella and their significance in obstetrics.

There are a few recommendations with which many will disagree. These are the Credé expression for the separation of the placenta, intrauterine douches for the control of postpartum hemorrhage and chloroform to relax spasms of an eclamptic convulsion.

The book not only is written in an interesting fashion but is beautifully illustrated by drawings and photographs, many of which are in color. Throughout the book are case reports which greatly enhance its teaching value. This is a real textbook, not only for medical students and general practitioners, for whom it is intended, but also for specialists in obstetrics.

Successful Dental Practice: Patient Relations—Patient Education—Treatment Planning—Business Principles. By J. Lewis Blass, Ph.G., D.D.S., Associate Professor of Periodontia, New York University College of Dentistry, New York, and Irvin Tulkin, D.D.S., Post-Graduate Instructor on Dental Practice Management, First District Dental Society of New York. Twenty drawings by Jean McConnell. Fabrikoid. Price, $6. Pp. 221, with 42 illustrations. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1917.

Untiring effort and much time have gone into the preparation of this book. The authors have presented cogent and well thought out principles and procedures which can be of great assistance to the reader. Although this book is intended particularly for practitioners of dentistry, much of its matter will apply to the practice of medicine. In both professions technical ability is recognized as the foremost reason for success, but a host of other factors influence each particular practice. The solutions to various problems which this book offers are based on the experience of successful practitioners.

The book is divided into five parts. Part 1, "patient relations," presents attitudes and procedures helpful in securing effective relations with patients. Receiving the patient, educating the patient during the examination, planning and presenting the diagnosis, outline of treatment, fees and terms are discussed in detail. Particularly interesting and instructive is the portrayal of conversational technics for meeting the problems of the patient in the initial interview. These problems pertain principally to fees, fear of pain, prejudices and misconceptions or ignorance. The vast importance of creating and maintaining the confidence of the patient is emphasized throughout the chapter.

"Office Management" is the title of Part 2. The authors present a comprehensive study of fee arrangements, bank loans, credit and collections, office responsibilities, secretary's duties, records, practice control and correspondence. Emphasis is placed on retaining the patient's good will.

Part 3 covers "Insurance and Legal Considerations and Personal and Psychologic Considerations." This section is the most valuable part of the book. The observations quoted from Charles H. Kendall on the "value of psychology to the dentist both in handling his patients and in knowing himself" and the material furnished by Isabelle Beaumont on the "management of the neurotic patient" are well worth the price of the book.

Part 4 is devoted to "Business Considerations," and the recent graduate will find valuable information about various types of practice as well as adequate listings of practice locations. Problems of practice and practice growth are covered thoroughly, and conclusive answers are given to forty-three questions concerning patient relations.

The book concludes with an "Atlas for Patient Education." The publishers are to be commended for the beautiful and distinct illustrations which assiduously conform to the text.

It is impossible in a brief review to supply an adequate idea of the importance of this book, which is characterized by truth and dignity.

Principles of the Contact Lens. By H. Treissman, M.B., B.S., F.R.C.S., and E. A. Plaice. Cloth. Price, $3.50. Pp. 88, with 40 illustrations. The C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1947.

This small textbook is really a handbook for the guidance of the ophthalmologist in selecting those patients who might wear contact lenses with benefit.

There is an excellent section with clear diagrams on the optics of contact lenses, but the section on indications is neither impartial nor scientific. It is unfortunate that ophthalmologists are rather sharply divided on the question of contact lenses, some being ardent advocates, others being as ardent opponents. The authors clearly belong to the former group, and therefore the indications for use of contact lenses will not be universally accepted.

Sattler's veil, or the fogging of vision which results from corneal edema, is the greatest single problem facing those who work with contact lenses today. The proposed method of solving this problem by simply removing the contact lens and reinserting it a half-hour later is open to severe criticism and entirely unsubstantiated by experience in this country.

On the whole, this handbook is not impartial enough to be a good handbook and is not nearly detailed or explicit enough to be a good source of information on contact lenses.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

INDUCTION OF LABOR

To the Editor:—Is the use of ergot for induction of labor a recognized and safe procedure? The regimen consists of an enema, 12 grains (0.78 Gm.) half strength powdered ergot by mouth and one hour later 6 grains (0.39 Gm.) of powdered ergot, if uterine contractions have not previously ensued. Artificial rupture of the membranes may be performed also if the fetal head is engaged.

K. W. Covey, M.D., Mahnomen, Minnesota.

Answer.—The oxytocic activity in powdered ergot varies greatly. It is far better to use the active principle of ergot, ergonovine, whenever the action of ergot is desired. There have been some reports in the literature describing the use of small doses of ergonovine for the induction of labor. Generally, however, ergot is not desirable for induction because it has a tendency to induce uterine tetany rather than normal rhythmic contractions.

Induction of labor has become a standardized procedure. The patient should be at or near term. The fetal head should be engaged in the pelvis to decrease the hazard of prolapse of the cord. The cervix should be "ripe"; that is, it should be short, its canal having been largely taken up in the process of effacement, and the cervical os should be soft and patulous, easily admitting one or two fingers. If these conditions are fulfilled the simple rupture of the membranes will be followed by the onset of labor after a latent period of one to six hours. No medication is necessary. Obviously, one should have a medical indication for the induction.

"Pitocin" can be used for induction, but it is rarely necessary. One should start with ½ minim (0.31 cc.) given subcutaneously and increase by ½ minim at fifteen minute intervals until a dose of 3 minims (0.18 cc.) has been reached. Total dose should not exceed 1 cc The patient should be watched carefully. If tetany of the uterus develops the drug should be discontinued. Medication should likewise be stopped when regular uterine contractions begin.

REACTIONS TO TESTS FOR UNDULANT FEVER

To the Editor:—Dr. A. J. Durant of the University of Missouri, chairman of the Veterinary Science Department, states that "only 4 per cent of the people that are infected react to the blood test for undulant fever, while 96 per cent of the cattle that have the disease react positively and reliably to the test." *In a survery by the Indiana State Board of Health* of especially exposed groups of persons, 50 per cent of the veterinarians who submitted themselves to the plate agglutination test showed a positive reaction. With fertilizer plant workers the proportion was 27 per cent.

Is the Indiana State Board of Health, or is Dr. Durant of Missouri in error? Should physicians continue to depend on Missouri laboratory procedure, or should it be discarded and should patients be treated on the basis *of their present and past symptoms? The State of Missouri* does not make cultures or use guinea pig inoculations for these tests.

Ira Allison, M.D., Springfield, Mo.

Answer.—The information cited from either source need not be suspected of being incorrect. With reference to the infected human being the important item of the stage of disease at which the tests were performed has been omitted. If serum agglutination tests are performed but once and at random, without respect to the duration of disease, in a large group of persons exposed to brucellosis for some years the proportion of positive agglutination tests may well be 4 to 5 per cent. In the survey of Gould and Huddleson (Gould, S. E., and Huddleson, J. F.: Diagnostic Methods in Undulant Fever (Brucellosis), with Results of Survey in 8,124 Persons, J. A. M. A. **109**:1971-1974 [Dec. 11] 1937), "of 623 infected persons 33, or 5.3 per cent, gave a positive agglutination test." The interpretation of the word "infected" is also at stake. In the passage cited it apparently carries the meaning of having at any previous time been invaded with brucella, without any implication that such invasion ever resulted in disease; and in the reference cited it means by definition a person who exhibited a positive intradermal test reaction and a low to moderate opsonocytophagic titer.

Since brucellosis can seldom be diagnosed with certainty by either clinical or laboratory criteria alone physicians must continue to use all available evidence, epidemiologic, clinical and laboratory, in order to keep the proportion of diagnostic errors to a minimum.

POSTMENOPAUSAL UTERINE BLEEDING

To the Editor:—Is the estrogenic component of various liver extract preparations potent enough to cause endometrial changes? A woman aged 70 began to bleed approximately twenty years after the menopause. She has been taking liver parenterally for several years. Curettage, *carefully done, shows no malignant change. The pathologist reports* "cystic hyperplasia." Pelvic examination reveals essentially normal conditions.

M.D., Philadelphia.

Answer.—There is no appreciable estrogenic activity in liver extracts made for commercial purposes. It is difficult, therefore, to explain why this woman has uterine bleeding at the age of 70 except by placing the blame on the endogenous estrogens elaborated by the adrenal cortex. A number of authors have been able to detect an appreciable amount of estrogen in the body fluids of menopausal or castrate women; likewise, others have been able to obtain an occasional biopsy of the endometrium in menopausal women with cystic hyperplasia. It is conceivable that small amounts of estrogen elaborated for a period of years unopposed by the other elements of the normally secreting ovary such as progesterone might result in a bleeding episode. Nevertheless, the presence of the rare granulosa or theca cell tumors of the ovary must be ruled out in this case.

DETECTION OF PENICILLIN IN TREATMENT

To the Editor:—Please give information regarding the best and most sensitive test now available for detection of penicillin in blood serum.

M.D., Rhode Island.

Answer.—The determination of penicillin in blood serum depends on the serial dilution of serum to which an organism of known, high sensitivity to penicillin is added and compared with dilutions of a standard solution of penicillin prepared in a similar manner. A number of satisfactory methods have been described. The two most widely used are that of C. H. Rammelkamp (A Method for Determining the Concentration of Penicillin in Body Fluids and Exudates, *Proc. Soc. Exper. Biol. & Med.* **51**:95, 1942) employing a beta hemolytic streptococcus as the test bacteria and that of Randall and associates (Randall, W. A.; Price, C. W., and Welch, H.: Estimation of Penicillin in Body Fluids, *Science* **101**:365, 1945) employing Bacillus subtilis.

GOAT'S MILK

To the Editor:—What are the main therapeutic considerations of goat's milk as against cow's milk? Is there any particular demand by internists or pediatricians for fresh goat's milk, and would there be much of a demand if the milk could be obtained canned—not in a condensed state? Is there any canning process available now (except the condensing process) which is *satisfactory as regards keeping qualities,* bacterial count and public health requirements? I am interested in the probable demand if the milk of the goat could be canned, evaporated and distributed.

Bennett W. Muir, M.D., Denver, Colo.

Answer.—Both cow's milk and goat's milk are favorably regarded as human foods because they contribute essential nutrients. Comparative composition tables show some differences chiefly quantitative, in individual components.

A large number of therapeutic claims have been made for goat's milk, but available confirmatory evidence is meager Common practice is the use of goat's milk by persons who cannot tolerate cow's milk because of allergies or other reasons.

There is apparently no great demand for fresh goat's milk as evidenced by the small size of the goat milk industry in this country. Goat's milk is produced in appreciable quantities only in a few limited areas in the United States, one of which is in Colorado. It can be satisfactorily processed in tin either with or without removal of some of the water by evaporation. With the addition of vitamin D evaporated goat's milk is eligible for acceptance by the Council on Foods and Nutrition of the American Medical Association.

BLEEDING PEPTIC ULCER

To the Editor:—What is the information on stopping bleeding peptic ulcers through the use of fibrin or other coagulants taken orally?

M.D., Georgia.

Answer.—The use of coagulants taken orally for bleeding peptic ulcers has not been considered feasible because the agents are either inhibited or destroyed in the stomach. However, Daly reported (Use of Buffer Thrombin in the Treatment of Gastric Hemorrhage, *Arch. Surg.* **55**:208, 1947) that when 30 cc. of seventh-molar phosphate buffer, p_H 7.6, is given in order to neutralize and buffer the gastric contents and followed in five minutes by another 30 cc. of the buffer containing 10,000 units of thrombin, the action of the enzyme is preserved for a sufficient length of time to clot fibrinogen. In his preliminary report he concluded that thrombin given in such a manner is an aid in some cases in the control of gastric hemorrhage. No toxic effects have been observed. The author pointed out that heavy arterial bleeding and bleeding which ordinarily requires a ligature cannot be controlled by this substance alone.

REACTION: TETANUS ANTITOXIN

To the Editor:—Administration of tetanus antitoxin in small doses for passive protection without a preceding skin test is universally condemned but freely practiced. Should a skin test be performed? Is there danger of anaphylactic reaction without it? Could reaction follow the skin test alone? Would administration of diphenhydramine ("benadryl") or a similar drug confer protection?

M.D., Iowa.

Answer.—There is always danger that tetanus antitoxin may cause severe reactions in susceptible persons even if given in small doses for preventive purposes. Preliminary skin tests should be made to determine susceptibility to the antitoxin so that antitoxin can be given safely. Properly made skin tests do not cause general reaction. Whether drugs can be relied on to prevent anaphylactic reaction to tetanus antitoxin is not known.

URINARY INCONTINENCE

To the Editor:—An apparently healthly patient, aged 68, underwent a one stage suprapubic prostatectomy eleven weeks ago. No difficulties were encountered in enucleating the hypertrophied gland, and there was little bleeding. The prostatic bed was filled with four small strips of "oxycel" (absorbable oxidized cellulose), and a size 24 Foley catheter was introduced through the urethra, inflated to 30 cc. and withdrawn into the prostatic bed. Traction was not applied but the catheter was left loose. Ten hours later, as there was no active bleeding, the bulb was deflated and after another fourteen hours the catheter was entirely removed. Convalescence was uneventful. The suprapubic wound healed in ten days. The patient was discharged on the sixteenth postoperative day.

On his first office visit he complained of dribbling in the daytime. During the night he would wake up once or twice feeling the urge to urinate and then without getting out of bed he could void normally at will in the urinal. But as soon as he got up in the morning he would have to wear a pad constantly, and when he was working he kept on dribbling. He is discouraged and I am at a loss to promise much improvement. Is there any hope that he may become fully continent again? Should he keep on wearing a Cunningham clamp or should he wear a rubber urinal? Are there any treatments I could give him:

M.D., New Jersey.

Answer.—A slight degree of incontinence resulting from injury to the external sphincter is observed occasionally following removal of the prostate gland by any of the various surgical procedures employed. In most cases urinary control is recovered gradually in the course of time. The improvement may be slow, however, and eleven weeks after operation is too short a time to lose hope. Patients with postoperative incontinence have been observed in whom natural processes have corrected the condition as long as a year after operation.

If this patient is still incontinent after several additional months, it would be well for him to have a urethroscopic examination to see whether any actual sphincteric damage has occurred. It sometimes happens that a persisting nodule of prostatic tissue has fallen into the sphincteric area, which acts as a wick, preventing proper closure of the sphincter.

Meanwhile a Cunningham clamp is better than a urinal, but the patient should be encouraged to wear it only when absolutely necessary, while at work. While he is at home an athletic support and pads holding the penis up over the symphysis offer a much better method of caring for the incontinence.

Fortunately, permanent incontinence is seldom observed. In such cases surgical procedures to restore sphincteric action have not proved uniformly successful and should be considered only as a last resort. An artificial sphincter, such as that recently suggested by Foley, might be considered at some future date. Optimism and encouragement are the remedies that your patient needs at the present time.

VISUAL TESTS

To the Editor:—What are the equivalent values of visual acuity findings in the two methods of examining eyes wherein one uses 20 for the numerator in the different steps or amounts of visual acuity while the other uses 20 for the denominator? What are the different methods of eye examinations used to make determinations in both of the methods? What is the method of conversion used to obtain the equivalents?

Joseph Bogan, M.D., Arlington, Va.

Answer.—The English system uses feet and inches in recording visual acuity, the Continental uses the metric and the International (1905) uses the decimal system.

The record in one system is generally, though not invariably, transcribable into either of the other systems. In all three systems what is really the numerator of a fraction represents the relative distances from which the test object is viewed by the patient and the denominator represents the distance at which the normal eye should see this same test object. Thus 20/200 in the English system means that the patient is 20 feet away from a test object which he should see at 200 feet; in the Continental (metric) system this is 6/60, i. e. the patient is 6 meters from an object which he should see at 60 meters, and in the decimal system this is recorded as 0.1. Similarly 20/40 = 6/12 = 0.5, and 20/20 = 6/6 = 10 in the respective systems.

URINARY BALANTIDIASIS

To the Editor:—We have found Balantidium coli in the urine specimens of 3 patients. Two of these patients had diffuse aches and pains, weakness, anorexia and loss of weight. They had had a mild febrile reaction. We have been unable to establish the pathogenicity of this parasite. Please send information, and give an opinion as to the pathogenicity of this organism? I might add that Dr. G. A. Slusser found some in a specimen of urine obtained during a ureteral catherization.

S. M. Ramer, M.D., Silver City, N. Mex.

Answer.—The normal habitat of Balantidium coli is the pig, monkey and man. Man becomes infested by ingestion of cysts of the organism. Though the organism conceivably may be transferred directly from man to man, some 25 per cent of cases of balantidiasis can be traced to direct contact with pigs. Since the disease is rare, although exposure in stockmen and in the abbatoir is high, it follows that in general the pathogenicity of this ciliate is of a low order. Experimental transference of the disease from pig or monkey to man has been unsuccessful.

After excystation in the small bowel, the highly motile trophozoites invade the submucosa of the large bowel, producing ulcerations resembling those of Endameba histolytica. Small mucoid abscesses containing the parasites are formed, surrounded by round cell infiltration.

Symptoms usually are those of chronic dysentery, varying widely in severity. Colic, bloody diarrhea, malaise and weight loss have been described. Prognosis is usually good except in persons debilitated by other disease or by senility, in whom mortality may vary from 5 to 30 per cent.

The presence of B. coli in the urinary tract is considered a great rarity, and authentic reports are scanty. Pathogenicity in this site seems to be nil, unless accompanied by other infection, in which event B. coli is believed to be merely an aggravating factor. The alkaline medium of the bowel is more favorable to the growth of the organism than the usually acid urine.

The route by which B. coli gains access to the urinary tract is open to some question. The organisms are known to invade lymph channels, lymph nodes and capillaries, thereby making systemic involvement possible. In cases which have been reported, however, it seems probable that retrograde infestation took place. The case of a homosexual Moroccan, exhibiting gross hematuria and discreet ulcerations of the bladder, proved to have a mixed infection of bilharziasis (schistosomiasis) and balantidiasis of the urinary bladder (Remlinger, P.; Cabanie, G., and Bailly, J.: Infection vésicale mixte à "Bilharzia haematobia" et à "Balantidium coli," *Presse méd.* **46**:1730-1731 [Nov. 23] 1938). There was no evidence of B. coli in the bowel.

It would be of considerable interest and value to elicit a history of contact, and to ascertain whether or not the colon was also involved in the cases described. In the absence of concomitant colonic infestation it is unlikely that B. coli is responsible for the symptoms.

FECAL FISTULA FOLLOWING APPENDECTOMY

To the Editor:—In *The Journal,* April 19, 1947, p. 1254, Dr. Thomas W. Kredel, Indiana, Pa., asks about fecal fistula following appendectomy.

The reply does not mention a common cause of postappendectomy fecal fistula, namely regional ileitis, which in the acute attack can simulate acute appendicitis. If the terminal ileum is not carefully examined or the disease is not recognized, a normal appearing appendix is usually mistakenly removed.

Unquestionably this disease sooner or later involves the cecum, and removal of the appendix seems to hasten or make worse already existing inflammatory changes in the cecum with resulting blow out of the appendical stump. A silk purse string suture has less chance of being followed by fistula than would a simple ligation of the stump but is no guarantee against this serious complication.

Regional enteritis has a well known symptomatology, and in the acute stage surgical intervention is not indicated.

R. M. Cunningham, M.D., Baltimore.

SENILE OSTEOPOROSIS

To the Editor:—In *The Journal* of Dec. 13, 1947, Queries and Minor Notes, two queries concerned osteoporosis of the spine. One (p. 1041) was entitled "Periodic Spasm of the Lumbar Muscles" (C. W. Atherton, M.D., Fairview, Ill), and the other (p. 1042) was entitled "Senile Osteoporosis" (M.D., California). Since both articles seem to be in the same vein, I should like to make a suggestion which was not offered in the replies. Dr. Fuller Albright, Boston, has brought out quite definitely the relationship of the endocrine system to the osteoporosis which occurs particularly in women over the age of 40 or which may occur following the cessation of menstruation. It is due specifically to the failure of formation of the protein bone matrix; consequently, calcium salts cannot be deposited as they are in the normal person. It is not necessarily due to a lack of calcium. In fact, the addition of calcium to the diet, together with vitamin D, may actually be harmful. Suggested treatment for this type of osteoporosis might be the use of androgens in doses of 25 mg. three times weekly together with estrogenic substance, about 6,000 units five times weekly or diethylstilbestrol 2 to 5 mg. per day. An adequate diet containing sufficient minerals, vitamins and calcium should be provided; however, it is hardly ever necessary to add additional calcium to the diet.

C. A. Splithoff, M.D., Oakland, Calif.

The Journal

OF THE

American Medical Association

EDITED FOR THE ASSOCIATION UNDER THE DIRECTION OF THE BOARD OF TRUSTEES BY

MORRIS FISHBEIN, M.D.

VOLUME 136 JANUARY–APRIL 1948

AMERICAN MEDICAL ASSOCIATION, CHICAGO 10, 1948

OFFICERS OF THE AMERICAN MEDICAL ASSOCIATION—1947-1948

HEADQUARTERS OF THE ASSOCIATION, 535 N. DEARBORN ST., CHICAGO

GENERAL OFFICERS

President—Edward L. Bortz	Philadelphia
President-Elect—R. L. Sensenich	South Bend, Ind.
Vice President—Thomas A. McGoldrick	Brooklyn
Secretary and General Manager—George F. Lull	Chicago
Treasurer—J. J. Moore	Chicago
Speaker, House of Delegates—R. W. Fouts	Omaha
Vice Speaker, House of Delegates—Francis F. Borzell	Philadelphia
Editor—Morris Fishbein	Chicago
Business Manager—Thomas R. Gardiner	Chicago

BOARD OF TRUSTEES

Ernest E. Irons, Secretary	Chicago, 1948
William F. Braasch	Rochester, Minn., 1948
Louis H. Bauer	Hempstead, N. Y., 1949
E. L. Henderson, Chairm'n	Louisville, Ky., 1949
John H. Fitzgibbon	Portland, Ore., 1950
James R. Miller	Hartford, Conn., 1950
W. M. Johnson	Winston-Salem, N. C., 1948
Dwight H. Murray	Napa, Calif., 1952
Edward J. McCormick	Toledo Ohio, 1952

JUDICIAL COUNCIL

John H. O'Shea	Spokane, Wash.,1948
Edward R. Cunniffe, Chairman,	New York, 1949
Louis A. Buie	Rochester, Minn., 1950
Walter F. Donaldson	Pittsburgh, 1951
H. L. Pearson Jr,	Miami, 1948
George F. Lull, Secretary, ex officio	Chicago

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Harvey B. Stone	Baltimore, 1948
Reginald Fitz	Boston, 1949
Russell L. Haden	Cleveland, 1950
William S. Middleton	Madison, Wis., 1951
H. G. Weiskotten, Chairman	Syracuse, N. Y., 1952
Victor Johnson	Rochester, Minn., 1953
V. P. Sydenstricker	Augusta, Ga., 1948
Donald G. Anderson, Secretary	Chicago

COUNCIL ON SCIENTIFIC ASSEMBLY

L. B. Jackson	San Antonio, Tex., 1948
Charles H. Phifer	Chicago, 1949
Henry R. Viets, Chairman	Boston, 1950
L. W. Larson	Bismarck, N. D., 1951
Stanley P. Reimann	Philadelphia, 1952

AND EX OFFICIO

The President-Elect, the Editor and the Secretary of the Association

COUNCIL ON MEDICAL SERVICE

A. W. Adson	Rochester, Minn., 1948
Walter B. Martin	Norfolk, Va., 1948
Elmer Hess	Erie, Pa., 1949
Thomas A. McGoldrick	Brooklyn, 1949
James R. McVay, Chairman	Kansas City, Mo., 1950
J. D. Hamer	Phoenix, Ariz., 1950
H. H. Shoulders	Nashville, Tenn.
Edward L. Bortz	Philadelphia
Edward J. McCormick	Toledo, Ohio
George F. Lull	Chicago
Thomas A. Hendricks, Secretary	Chicago

COUNCIL ON PHARMACY AND CHEMISTRY

(Standing Committee of Board of Trustees)

James P. Leake	Washington, D. C., 1949
David P. Barr	New York, 1949
W. Barry Wood Jr.	St. Louis, 1949
Morris Fishbein	Chicago, 1950
G. W. McCoy	New Orleans, 1950
Perrin H. Long	Baltimore, 1950
Elmer M. Nelson	Washington, D. C. 1950
Torald Sollmann, Chairman	Cleveland, 1951
Isaac Starr	Philadelphia, 1951
Robert F. Loeb	New York, 1951
E. M. K. Geiling	Chicago, 1952
Paul R. Cannon	Chicago, 1952
S. W. Clausen	Rochester, N. Y., 1952
E. D. Curchill	Boston, 1953
Joseph Stokes Jr	Philadelphia, 1953
C. Guy Lane	Boston, 1953
R. T. Stormont	Washington, D. C., 1953
Austin E. Smith, Secretary	Chicago

COUNCIL ON PHYSICAL MEDICINE

(Standing Committee of Board of Trustees)

H. B. Williams	New York, 1949
Frank H. Krusen	Rochester, Minn., 1949
Anthony C. Cipollaro	New York, 1950
M. A. Bowie	Bryn Mawr, Pa., 1950
George M. Piersol	Philadelphia, 1950
W. E. Garrey	Nashville, Tenn., 1951
W. W. Coblentz	Washington, D. C., 1951
John S. Coulter, Chairman	Chicago, 1951
Derrick Vail	Chicago, 1951
W. E. Grove	Milwaukee, 1951
A. C. Ivy	Chicago, 1952
Frank R. Ober	Boston, 1952
Frank D. Dickson	Kansas City, Mo., 1952
Morris Fishbein, ex officio	Chicago
Howard A. Carter, Secretary	Chicago

COUNCIL ON FOODS AND NUTRITION

(Standing Committee of Board of Trustees)

C. S. Ladd	Washington, D. C., 1949
John B. Youmans	Chicago, 1949
H. C. Stuart	Boston, 1950
Morris Fishbein	Chicago, 1950
R. M. Wilder	Rochester, Minn., 1951
Howard B. Lewis	Ann Arbor, Mich., 1951
J. S. McLester, Chairman	Birmingham, Ala., 1951
Philip C. Jeans	Iowa City, 1952
C. A. Elvehjem	Madison, Wis., 1952
William J. Darby	Nashville, Tenn., 1953
George R. Cowgill	New Haven, Conn., 1953
James R. Wilson, Secretary	Chicago

COUNCIL ON INDUSTRIAL HEALTH

(Standing Committee of Board of Trustees)

R. T. Johnstone	Los Angeles, 1949
A. J. Lanza	New York, 1949
C. D. Selby	Detroit, 1949
Warren F. Draper	Washington, D. C., 1950
Raymond Hussey	Detroit, 1950
Henry H. Kessler	Newark, N. J., 1950
L. D. Bristol	Augusta, Me., 1951
Paul B. Magnuson	Washington, D. C., 1951
Robert A. Kehoe	Cincinnati, 1951
H. A. Vonachen	Peoria, Ill., 1952
W. A. Sawyer	Rochester, N. Y., 1952
James S. Simmons	Boston, 1952
E. J. McCormick, ex officio	Chicago
C. M. Peterson, Secretary	Chicago

COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE

(Standing Committee of Board of Trustees)

James C. Sargent, Chairman	Milwaukee
Richard L. Meiling, Secretary	Columbus, Ohio
W. McK. Craig	Rochester, Minn.
Harold S. Diehl	Minneapolis
Perrin H. Long	Baltimore
Harold C. Lueth	Omaha
Stafford Warren	Los Angeles

AND EX OFFICIO

Edward L. Bortz	Philadelphia
George F. Lull	Chicago

COMMITTEE ON SCIENTIFIC EXHIBIT

Dwight H. Murray, Chairman	Napa, Calif.
James R. Miller	Hartford, Conn.
E. J. McCormick	Toledo, Ohio
Thomas G. Hull, Director	Chicago

ADVISORY COMMITTEE

Howard F. Root	Boston
Paul J. Hanzlik	San Francisco
Ludvig Hektoen	Chicago
Urban Maes	New Orleans
Max M. Peet	Ann Arbor, Mich.
James P. Leake	Washington, D. C.

SECTION OFFICERS 1947-1948

Internal Medicine—Chairman, Cecil J. Watson, Minneapolis; Vice Chairman, James A. Green, Houston, Texas; Secretary, Walter L. Palmer, 950 East 59th Street, Chicago.

Surgery, General and Abdominal—Chairman, Burr N. Carter, Cincinnati; Vice Chairman, Warren H. Cole, Chicago; Secretary, Michael E. DeBakey, 1430 Tulane Avenue, New Orleans 13.

Obstetrics and Gynecology—Chairman, William F. Mengert, Dallas, Texas; Vice Chairman, Robert L. Faulkner, Cleveland; Secretary, Arthur B. Hunt, 102 Second Avenue S.W., Rochester, Minn.

Ophthalmology—Chairman, Everett L. Goar, Houston, Texas; Vice Chairman, Francis Heed Adler, Philadelphia; Secretary, Trygve Gundersen, 101 Bay State Road, Boston.

Laryngology, Otology and Rhinology—Chairman, Fletcher D. Woodward, Charlottesville, Va.; Vice Chairman, John R. Simpson, Pittsburgh; Secretary, J. Milton Robb, 1553 Woodward Avenue, Detroit.

Pediatrics—Chairman, Oscar Reiss, Los Angeles; Vice Chairman, Stanley Gibson, Chicago; Secretary, Margaret Mary Nicholson, 1801 Eye Street N.W., Washington, D. C.

Experimental Medicine and Therapeutics—Chairman, Walter Bauer, Boston; Vice Chairman, Dwight L. Wilbur, San Francisco; Secretary, Carl V. Moore, 600 South Kingshighway, St. Louis.

Pathology and Physiology—Chairman, Alvin G. Foord, Pasadena, Calif.; Vice Chairman, George E. Wakerlin, Chicago; Secretary, Edwin F. Hirsch, 1439 South Michigan Avenue, Chicago.

Nervous and Mental Diseases—Chairman, A. R. Vonderahe, Cincinnati; Vice Chairman, William A. Smith, Atlanta, Ga.; Secretary, Frederick P. Moersch, 102 Second Avenue S.W., Rochester, Minn.

Dermatology and Syphilology—Chairman, Henry E. Michelson, Minneapolis; Vice Chairman, Carroll S. Wright, Philadelphia; Secretary, Clinton W. Lane, 508 North Grand Boulevard, St. Louis.

Preventive and Industrial Medicine and Public Health—Chairman, Robert H. Riley, Baltimore; Vice Chairman, Oscar A. Sander, Milwaukee, Wis.; Secretary, Rutherford T. Johnstone, 727 West Seventh Street, Los Angeles.

Urology—Chairman, Reed M. Nesbit, Ann Arbor, Mich.; Vice Chairman, Earl E. Ewert, Boston; Secretary, Edward N. Cook, 102 Second Avenue S.W., Rochester, Minn.

Orthopedic Surgery—Chairman, J. Warren White, Greenville, S. C.; Vice Chairman, David M. Bosworth, New York; Secretary, Joseph S. Barr, 234 Marlborough Street, Boston.

Gastro-Enterology and Proctology—Chairman, Sara M. Jordan, Boston; Vice Chairman, William H. Daniel, Los Angeles; Secretary, Grant H. Laing, 104 South Michigan Boulevard, Chicago.

Radiology—Chairman, W. W. Wasson, Denver, Colo.; Vice Chairman, Harry M. Weber, Rochester, Minn.; Secretary, U. V. Portmann, 2020 East 93d Street, Cleveland.

Anesthesiology—Chairman, Ralph M. Tovell, Hartford, Conn.; Vice Chairman, Stuart C. Cullen, Iowa City; Secretary, John S. Lundy, 102 Second Avenue S.W., Rochester, Minn.

General Practice—Chairman, Eric A. Royston, Los Angeles; Vice Chairman, Milton B. Casebolt, Kansas City, Mo.; Secretary, Winfred B. Harm, 5884 West Vernor Highway, Detroit.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JANUARY—APRIL 1948

Titles have been listed or abstracts made of important articles in the following journals in the Current Literature Department of The Journal during the past four months. Any of the journals, except those starred, will be lent by The Journal to subscribers in continental United States and Canada and to members of the American Medical Association for a period not exceeding three days. Three journals may be borrowed at a time. No journals are available prior to 1937. Requests for periodicals should be addressed to the Library of the American Medical Association and should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicalsare requested). Thus most of these journals are accessible to the general practitioner.

Acta chirurgica Scandinavica. Stockholm.
Acta clinica belgica. Brussels.
Acta medica orientalia. Jerusalem.
Acta medica scandinavica. Stockholm.
Acta obstetricia et gynecologica Scandinavica. Stockholm.
Acta orthopaedica Scandinavica. Copenhagen.
Acta psychiatrica et neurologica. Copenhagen.
Acta radiologica. Stockholm.
American Heart Journal. St. Louis.
American Journal of Clinical Pathology. Baltimore.
American Journal of Digestive Diseases. Fort Wayne, Ind.
*American Journal of Diseases of Children. A. M. A., Chicago.
American Journal of Hygiene. Baltimore.
American Journal of the Medical Sciences. Philadelphia.
American Journal of Medicine. New York.
American Journal of Obstetrics and Gynecology. St. Louis.
American Journal of Ophthalmology. Cincinnati.
American Journal of Pathology. Ann Arbor, Mich.
American Journal of Physiology. Baltimore.
American Journal of Public Health. New York.
American Journal of Roentgenol. and Radium Therapy. Springfield, Ill.
American Journal of Surgery. New York.
American Journal of Syphilis, Gonor. and Venereal Diseases. St. Louis.
American Journal of Tropical Medicine. Baltimore.
American Practitioner. Philadelphia.
American Review of Soviet Medicine. New York.
American Review of Tuberculosis. New York.
Anesthesiology. New York.
Annales medicinae internae Fenniae. Helsinki.
Annals of Allergy. Minneapolis.
Annals of Internal Medicine. Lancaster, Pa.
Annals of Otology, Rhinology and Laryngology. St. Louis.
Annals of the Rheumatic Diseases. London.
Annals of Surgery. Philadelphia.
Annals of Tropical Medicine. Liverpool.
Annals of Western Medicine and Surgery. Los Angeles.
*Archives of Dermatology and Syphilology. A. M. A., Chicago.
Archives of Diseases in Childhood. London.
*Archives of Internal Medicine. A. M. A., Chicago.
Archiv fur Kinderheilkunde. Stuttgart.
Archivio italiano di chirurgia. Bologna.
*Archives of Neurology and Psychiatry. A. M. A., Chicago.
*Archives of Ophthalmology. A. M. A., Chicago.
*Archives of Otolaryngology. A. M. A., Chicago.
*Archives of Pathology. A. M. A., Chicago.
Archives of Physical Medicine. Chicago.
*Archives of Surgery. A. M. A., Chicago.
Archivos argentinos de pediatría. Buenos Aires.
Archivos de clínica. Rio de Janeiro.
Arizona Medicine. Phoenix.
Australian and New Zealand Journal of Surgery. Sydney.
Boletín de la Asociación médica de Puerto Rico. San Juan.
Blood. New York.
Brain. London.
British Journal of Dermatology and Syphilis. London.
British Journal of Experimental Pathology. London.
British Journal of Industrial Medicine. London.
British Journal of Ophthalmology. London.
British Journal of Radiology. London.
British Journal of Surgery. Bristol.
British Journal of Tuberculosis. London.
British Journal of Urology. London.
British Medical Journal. London.
Bruxelles-médical. Brussels.
Bulletin of the Johns Hopkins Hospital. Baltimore.
Bulletin of the New York Academy of Medicine. New York.
Bulletin of the U. S. Army Medical Department. Washington, D. C.
California Medicine. San Francisco.
Canadian Medical Association Journal. Montreal.
Cancer Research. Baltimore.
Cardiologia. Basel.
Cervello. Naples.
Chirurg. Würzburg.
Cincinnati Journal of Medicine. Cincinnati.
Connecticut State Medical Journal. Hartford.
Delaware State Medical Journal. Wilmington.
Deutsche medizinische Wochenschrift. Stuttgart.
Diseases of Chest. Chicago.
Edinburgh Medical Journal.
Endrocrinology. Springfield, Ill.
Experimental Medicine and Surgery. Brooklyn.
Gastroenterology. Baltimore.
Geriatrics. Minneapolis.
Giornale di clinica medica. Parma.
Giornale di medicina. Palermo.
Glasgow Medical Journal.
Gynaecologia. Basel.
Hawaii Medical Journal. Honolulu.
Illinois Medical Journal. Chicago.
Indian Medical Gazette. Calcutta.
Industrial Medicine. Chicago.
Irish Journal of Medical Science. Dublin.
Journal of Allergy. St. Louis.
Journal of the Arkansas Medical Society. Fort Smith.
Journal of Aviation Medicine. St. Paul.
Journal of Bacteriology. Baltimore.
Journal of Bone and Joint Surgery. Boston.
Journal of Clinical Investigation. Boston.
Journal of Endocrinology. London.
Journal of Experimental Medicine. New York.
Journal of the Florida Medical Association. Jacksonville.
Journal of Gerontology. Springfield, Ill.
Journal of Hygiene. London.
Journal of Immunology. Baltimore.
Journal of the Indiana State Medical Association. Indianapolis.
Journal of Industrial Hygiene and Toxicology. Baltimore.
Journal of Infectious Diseases. Chicago.
Journal of International College of Surgeons. Chicago.
Journal of Investigative Dermatology. Baltimore.
Journal of the Iowa State Medical Society. Des Moines.
Journal of the Kansas Medical Society. Topeka.
Journal of Laboratory and Clinical Medicine. St. Louis.
Journal of Laryngology and Otology. London.
Journal of the Maine Medical Association. Portland.
Journal of the Medical Association of the State of Alabama. Montgomery.
Journal of the Medical Association of Georgia. Atlanta.
Journal of the Medical Society of New Jersey. Trenton.
Journal of Mental Science. London.
Journal of the Michigan State Medical Society. Lansing.
Journal of the Missouri State Medical Association. St. Louis.
Journal of the Mount Sinai Hospital. New York.
Journal National Malaria Society, Columbia, S. C.
Journal of Nervous and Mental Disease. New York.
Journal of Neurology, Neurosurgery and Psychiatry. London.
Journal of Neuropathology and Experimental Neurology. Baltimore.
Journal of Neurophysiology. Springfield, Ill.
Journal of Neurosurgery. Springfield, Ill.
Journal of Nutrition. Philadelphia.
Journal of Obstetrics and Gynaecology of the British Empire. Manchester.
Journal of the Oklahoma State Medical Association. Oklahoma City.
Journal of Pathology and Bacteriology. Edinburgh.
Journal of Pediatrics St. Louis.
Journal of Pharmacology and Experimental Therapeutics. Baltimore.
Journal of the Philippine Medical Association. Manila.
Journal of Physiology. Cambridge.
Journal of the Royal Army Medical Corps. London.
Journal of the South Carolina Medical Association. Florence.
Journal of the Tennessee State Medical Association. Nashville.
Journal of Thoracic Surgery. St. Louis.
Journal of Tropical Medicine and Hygiene. London.
Journal of Urology. Baltimore
Journal-Lancet. Minneapolis.
Kentucky Medical Journal. Bowling Green.
Klinische Wochenschrift. Heidelberg.
Lancet. London.
Laryngoscope. St. Louis.
Maandschrift voor Kindergeneeskunde. Leyden.
Medical Annals of the District of Columbia. Washington.
Medical Journal of Australia. Sydney.
Medicine. Baltimore.
Military Surgeon. Washington, D. C.
Minnesota Medicine. St. Paul.
Nebraska State Medical Journal. Lincoln.
Nederlandsch Tijdschrift voor Geneeskunde. Amsterdam.
New England Journal of Medicine. Boston.
New Orleans Medical and Surgical Journal. New Orleans.

*Cannot be lent.

New York State Journal of Medicine. New York.
New Zealand Medical Journal. Wellington.
Nordisk medicin. Gothenburg.
North Carolina Medical Journal. Winston-Salem.
Northwest Medicine. Seattle.
*Occupational Medicine. A. M. A., Chicago.
Ohio State Medical Journal. Columbus.
Ophthalmologica. Basel.
Pediatría de las Américas. Mexico, D. F.
Pennsylvania Medical Journal. Harrisburg.
Physiological Reviews. Baltimore.
Plastic & Reconstructive Surgery. Baltimore.
Practitioner. London.
Praxis. Bern.
Prensa médica argentina. Buenos Aires.
Presse médicale. Paris.
Proceedings of Royal Society of Medicine. London.
Proceedings of the Society for Experimental Biology and Medicine. Utica, N. Y.
Progresso medico. Naples.
Psychosomatic Medicine. Baltimore.
Public Health Reports. Washington, D. C.
Puerto Rico Journal of Public Health and Tropical Medicine. San Juan.
Quarterly Journal of Medicine. Oxford.
Quarterly Journal of Studies on Alcohol. New Haven, Conn.
Radiology. Syracuse, N. Y.
Review of Gastroenterology New York.
Revista de la Asociacion médica argentina. Buenos Aires.
Revista clínica española. Madrid.
Revista cubana de pediatría. Havana.
Revista española de tuberculosis. Madrid.
Revista médica de Chile. Santiago.
Revista médica de Rosario. Rosario.
Revista de psiquiatría y disciplinas conexas. Santiago.
Revista de urología. Caracas.
Revue belge de pathologie et de médicine expérimentale. Brussels.
Revue neurologique. Paris.
Rhode Island Medical Journal. Providence.
Rocky Mountain Medical Journal. Denver.
Sang. Paris.
Schweizerische medizinische Wochenschrift. Basel.
Semaine des hôpitaux de Paris. Paris.
Semana médica. Buenos Aires.
Southern Medical Journal. Birmingham, Ala.
Southern Surgeon. Atlanta, Ga.
Surgery, Gynecology and Obstetrics. Chicago.
Surgery. St. Louis.
Texas State Journal of Medicine. Fort Worth.
Thorax. London.
Transactions of the Royal Society of Tropical Medicine and Hygiene. London.
Tubercle. London.
Union Medicale du Canada. Montreal.
United States Naval Medical Bulletin. Washington, D. C.
Urologic and Cutaneous Review. West Palm Beach, Fla.
Virginia Medical Monthly. Richmond.
Western Journal of Surgery, Obstetrics and Gynecology. Portland, Ore.
West Virginia Medical Journal. Charleston.
Wiener klinische Wochenschrift. Vienna.
Wiener medizinische Wochenschrift. Vienna.
Wisconsin Medical Journal. Madison.
Yale Journal of Biology and Medicine. New Haven
Zeitschrift für Kinderheilknude. Heidelberg.
Zeitschrift für Vitamin-, Hormon- & Fermentforschung. Vienna.

SUBJECT INDEX

This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation; "E," Editorial; "C," Correspondence; "OS," Organization Section; "ab," abstracts; the star (*) indicates an original article in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

For author index see page 1104.

A

A. C. S. (Bogomolets), in arthritis treatment, [Rogoff] 205—ab
AN 148, evaluation of methadon, [Troxil] *921
A. T. 10: See Dihydrotachysterol
ABBOTT—Miller Tube: See Duodenal Tube
ABDOMEN: See also Gastrointestinal Tract; Pelvis; Peritoneum
  arteriography, [Wagner] 495—ab
  Ascites: See Ascites
  cancer, surgery for, [Rhoads] 308—ab
  cancer, treatment, recent advances, [Rhoads] *306
  pain (chronic) in women, [Best] 123—ab
  Pregnancy: See Pregnancy, ectopic
  stethoscope auscultation plus air inflated balloon to locate tip of Miller-Abbott tube, [McLanahan] *35
  Surgery: See Abdomen cancer; Appendectomy; Cesarean Section; Gallbladder
ABNORMALITIES: See also Arachnodactyly: Crippled; under names of specific organs and regions as Gallbladder: Heart
  congenital malformation attributable to smallpox vaccination during pregnancy? 1009
ABORTION, artificial, discussed, Berlin, 708
  hormonal test for fetal death, [Zondek & others] *965; (correction) 1107
  Infectious, in Cattle: See Brucellosis
  multiple spontaneous, 511
ABSCESS: See Ulcers; under organ affected
ACACIA, causes fatal nephrosis with arabinosis, 557—E
ACADEMY: See under names of specific academies as American Academy; New York . Academy; Seville Academy; under list of Societies at end of letter S
ACARODERMATITIS urticarioides, grain itch, outbreak in Baltimore, 112
ACCIDENTS: See also Disability; Trauma; World War II; Wounds
  Accident Service (film review) 348
  electrocution with direct shock to brain itself, [Dickson] 723—ab
  home, statistics on, 568
  Industrial: See Industrial Accidents; Workmen's Compensation
  prevention problems, A. M. A. Committee and National Safety Council Committee to confer, 475
  rural, [MacCornack] 284—ab
  statistics (annual) on, by National Safety Council, 568
ACETYLCHOLINE, inject into brachial artery, in myasthenia gravis patients and others, [Wilson] 802—ab
  physiology of, symposium at Army Chemical Center, 884
*di*ACETYL MORPHINE: See Morphine
3-ACETYLPYRIDINE aggravates blacktongue, [Elvehjem] *918
ACHROMOTRICHIA: See Hair, gray
ACID, acetic, role in metabolism, 771—E
  acetylsalicylic, dosage, [Szucs] (correction) 196
  Amino Acids: See Amino Acids
  p-aminobenzoic, antisulfonamide activity, [Elvehjem] *918
  p-aminobenzoic, mechanism in rickettsial disease, [Rivers] 292—ab
  Ascorbic Acid and Scurvy (film review), 575
  ascorbic, ascorbemia in pulmonary tuberculosis, [Lafontaine] 951—ab
  ascorbic, complaints from excessive amounts of orange juice? 432
  ascorbic, effect on intradermal tuberculin reaction, 127
  ascorbic, in poison oak dermatitis, [Klasson] 716—ab
  ascorbic, tablets, N.N.R., (National Drug) 1049
  ascorbic, utilization, 402—E
  boric, spraying nose with, 512
  fatty, iodine number, 432
  folic, any effect on impulse transmission at myoneural junction, [Haden] 310—ab
ACID—Continued
  folic, diuretic action? [Haden] 310—ab
  folic, effect in macrocytic anemia, [Haden] 310—ab
  folic, efficacy, [Haden] 310—ab
  folic, increase neurologic relapses in pernicious anemia? [Haden] 310—ab
  folic, to combat toxicity of sulfonamides, [Elvehjem] *916
  folic, treatment, indications, [Haden] *308
  folic, treatment of anemias, [Rambert] 726—ab; [Elvehjem] *916
  folic, vs. liver extract, 772—E
  glutamic, treatment of 30 Washington mentally retarded children, 988—OS
  hydrochloric, and peptic ulcer, [Bockus] 298—ab
  hydrochloric (dilute) and low salt diet in hypertension, 809
  hydrochloric, not recommended in anemias, [Haden] 310—ab
  nicotinic deficiency and tongue lesions [Bakwin] 1112—ab
  Nicotinic, Diethylamide of: See Nikethamide
  nicotinic, in rice, [Maynard & Nelson] *1045
  nicotinic, niacin amide to prevent anorexia [illegible] [Goldstein] 950—ab
  [illegible] N.N.R., (American [illegible]
  phenylpyruvic, in urine of certain feebleminded patients, 629—E
ACIDITY, Gastric: See Stomach acidity
ACIDOSIS, Diabetic: See Diabetes Mellitus
ACNE, treatment, 955
ACOUSTICS, supersonic reproduction on gramophone records, 199
ACROMEGALY, 850
ACTINOMYCES: See also Streptomycin
  asteroides infection simulating pulmonary tuberculosis, [Glover & others] *172
ACTINOMYCOSIS in Southern California, [Robinson] 1001—ab
  of salivary glands, [Furstenberg] *3
  treatment, thymol, (reply) [Etter] 1010
ACTIVITY, Early Rising After Operation: See Convalescence
ADANON, evaluation of methadon, [Troxil] *921
ADDICTION: See Alcoholism; Morphine
ADDISON'S ANEMIA: See Anemia, Pernicious
ADENOCARCINOMAS, mucin-secreting, [Patch] *825
ADENOIDECTOMY, tonsils improve as a result? 808
ADENOMA of pituitary, [Grant] *669
  Toxic, of Thyroid: See Goiter, Toxic
ADENOMYOSIS: See Endometriosis
ADOLESCENCE, brain injury from high school boxing, 907
  cancer of uterus cervix in young girls, [Speert] 797—ab
  diabetes mellitus and arteriosclerosis in youth, [Ross] 895—C
  hay fever in high school boys, 432
  hypogenitalism at puberty; use of testosterone, [Hurxthal] *12
  obesity in, [Graham] 903—ab
  rural youth and World War II, [Friedman] 775—OS
ADOLPHUS brand foods, manufacturer fined, Ariz., 940
ADRENALIN: See Epinephrine
ADRENALS, cortex extract treatment of chronic brucellosis, [Griggs] *911
  Cortex Hormone (Crystalline): See Desoxycorticosterone
  cortical substances, effective for what conditions, [Thompson] 320—ab
  hemorrhage in monocytic leukemia, [Lauckner] 723—ab
  Hormone (sympathetic): See Epinephrine
  what's new in endocrinology, [Thompson] *317
ADVERTISING Council, Inc., joint sponsor of "check tuberculosis" campaign, 112—E
  Federal Trade Commission surveys, 402—E
ADVERTISING—Continued
  in JOURNAL and membership in Cooperative Medical Advertising Bureau, Council statement, 399; 100—E
  of testosterone; partial quotation from Dr. W. O. Thompson's article, 558—E
AERONAUTICS: See Aviation
AEROSOL: See also Penicillin
  therapy of respiratory disease, [Bryson] 581—ab
AFRICA, one year expedition of Naval Medical Unit of U. of California, 336
  precautions before going to, 511
AGE, Adolescent: See Adolescence
  middle, blood pressure study on business men, 48
  Mother's: See Maternity
  Old: See Old Age
AGGLUTININS, autoagglutinins in hemolytic anemias, [Renner] 722—ab
  Rh Factor: See Rh Factor
  sludged blood, 556—E
AGGLUTINOGEN, Rh: See Rh Factor
AGRANULOCYTOSIS, ACUTE, esophageal stricture after, [Bryan] 800—ab
  thiouracil, [Solis] 654—ab
  treatment, penicillin plus pentose nucleotide and liver extracts, [Muller] 951—ab
AGRICULTURE: See Rural Communities
AIDES: See Medical Aides
AIR: See also Oxygen
  borne infections and ventilation, 144
  Embolism: See Embolism
  inflated balloon, test to locate Miller-Abbott tube, [McLanahan] *35
  Injection: See Pneumothorax, Artificial
  pollution, ordinance on, N. Y., 339
AIR PASSAGES: See Respiratory System
AIRPLANES: See Aviation
AIRSICKNESS, 288
ALASKA, medical conditions (replies) [Seinfeld] 347—C; [Brauner] 347—C
ALBUMIN: See Eggs, white of; Lactalbumin
  in Blood: See Blood proteins
  in Urine: See Albuminuria
ALBUMINURIA and pregnancy, 358
ALCALIGENES faecalis, bacteremia and meningitis from, [Terry] 64—ab
ALCOHOL ADDICTS: See Alcoholism
ALCOHOLISM: See also Medicolegal Abstracts at end of letter M
  blood amylase (elevated serum) in addicts, [Donzalski] 1065—ab
  chronic, treatment by spinal puncture, 70
  conference and broadcast, 702
  Fort Knox experiment, 1111
  heredity and, 849
  Industrial Conference on (first), 565
  intoxication earlier from concentrated or diluted drinks? 1009
  occupational disease of seamen, [Alcoholics Anonymous Seaman's Club] 900—ab
  research studies, 482
ALIMENTARY Tract: See Digestive System
ALLERGY; ALLERGENS: See Anaphylaxis and Allergy
ALLORHYTHMIAS, bigeminy or coupled beats, 615—ab
ALTITUDE, change in, effect on blood pressure, 908
  High: See also Aviation
  high, emptying of stomach at, [Nimeh] 582—ab
  high, life expectancy, Bolivia, 417
ALTRO Work Shops, Inc., experiment in cardiac rehabilitation of tuberculous, 123
AMBULATION, Early: See Convalescence
AMENORRHEA, cause and treatment, 1073
AMENTIA: See also Mental Disorders
  of infectious origin, penicillin in, [Zanetti] 654—ab
AMERICAN: See also Inter-American; Latin American; National; Pan American; South American; United States; list of societies at end of letter S
  Academy of General Practice, 834—OS

AMERICAN—Continued

- Association for Health, Physical Education and Recreation, resolution on eliminating boxing from interscholastic athletic programs, 907
- Board of Orthopaedic Surgery (increases examination fee), 787
- Boards, (Army medical officers certified by) 972—ab; (Naval medical officers certified by) 1104
- Cancer Society, (-A. M. A. series of articles on cancer) [Brunschwig] ★28; [Naffziger & Boldrey] ★96; [Miller] ★163; [Craver] ★244; [Daland] ★391; [Dargeon] ★459; [Phemister] ★545; [Michelson] ★683
- Cancer Society, (fund-raising campaign, publish editorial in Journal supporting) 833—OS; 880—E; (20 annual fellowships) 881—E
- College of Chest Physicians (fellowship examinations) 995
- College of Physicians research fellowships in medicine, 124
- College of Surgeons, (resolution approves nurse anesthetists) 839; (tumor registries) 1063
- Diabetes Association (publication of *ADA Forecast*), 274
- Foundation: See Foundation
- Health Resorts: See Health resorts
- Institute of Biological Sciences established, 788
- *Library Association, (Lippincott library award)* 1107
- Medical Directory, (recording membership and fellowship in new edition) 403—OS
- Medical Golfing Association, (tournament at annual session) 483
- Medicine: See Medicine
- Overseas Aid—United Nations Appeal for Children, 274
- Pharmaceutical Manufacturers Association, (Pharmaceutical-Medical Research Foundation) 42—E; (Scientific Award to A. M. A.) [Bortz] 183; (papers read at Scientific Award Ceremony) [Ivy] ★909; [Elvehjem] ★915
- Physicians: See Physicians
- Physicians in Service: See World War II, medical officers
- Public Health Association, (Dr. Fontenelle elected a vice president) 55; (local health units for nation developed by) 473—E
- Red Cross: See Red Cross
- Registry of Pathology, 1063
- republics (3), U. S. Department of State maintains libraries in, 736—ab
- Soldiers, etc.: See World War II

MERICAN MEDICAL ASSOCIATION

- American Medical Directory, (recording membership and fellowship in new edition) 403
- American Pharmaceutical Manufacturers Association Scientific Award to, 42—E; [Bortz] 183; (papers read at ceremony) [Ivy] ★909; [Elvehjem] ★915
- Annual Conference of Section Secretaries, Oct. 18, 1947, 187
- Annual Congress on Medical Education and Licensure, (tentative program) 45
- Archives: See subhead: Journals, special
- Atlantic City session (1947) proceedings adopted, 181
- Atomic Energy Commission message to, [Bortz] 183
- Board of Trustees, (rebates, kickbacks, commissions and medical ethics) 176—E; (report) 184; 258; (resolutions on geographic selection) 190; 260; (meeting, Jan. 4-7, 1948) 475; (meeting, Feb. 19-20, 1948) 833
- Building: See subhead: Headquarters
- Bureau of Health Education: See also subhead: Radio Program
- Bureau of Health Education, ("Music with your meals") 180—E; 191; (physicians and schools) 403; (brochure on Health Appraisal of School Children) 698; 780
- Bureau of Legal Medicine and Legislation: See also Laws and Legislation, weekly summary; Medicolegal Abstracts at end of letter M
- Bureau of Legal Medicine and Legislation, (physician's federal income tax) 405
- Bureau of Medical Economic Research, (selling price of a medical practice) 333
- Cancer series sponsored by American Cancer Society and, [Brunschwig] ★28; [Naffziger & Boldrey] ★96; [Miller] ★163; [Craver] ★244; [Daland] ★391; [Dargeon] ★459; [Phemister] ★545; [Michelson] ★683
- centennial phonograph recordings, 269
- Chicago Annual Session (1948), (hotel reservations) 333; (Northwestern Medical School to televise) 989
- **Cleveland Interim Session, 177—E; 181; 257**
- Committee: See also subheads: Joint Committee; Reference Committee
- Committee appointments, 833
- Committee on American Health Resorts, (function of consultants on American health resorts) 475
- Committee on Nursing Problems, (report) 185; 258; 475; 779
- Committee on Postwar Medical Service: See subhead: Joint Committee for Coordination of Medical Activities

AMERICAN MEDICAL ASSOCIATION—Continued

- Committee on Rural Medical Service, (report) 186; 268; (Joint Committee report) 779
- Committee to Confer with National Safety Council Committee on problems in accident prevention, 475
- Committee to Expedite Work of House of Delegates, (report) 185; 259
- Committee to Study Hospital Competition with Private Practice, (report) 475
- Committee to Work with American National Red Cross on its blood bank program, 833
- Conference: See also subhead: Annual Conference
- Conference on Nomenclature, 833
- Congress: See subhead: Annual Conference
- Cooperation with National Committee on Home Safety, 475
- cooperation with U. S. Navy Bureau of Medicine and Surgery, 476
- Cooperative Medical Advertising Bureau, membership and advertising, (Council statement) 399; 400—E
- Council on Foods and Nutrition, (wheat and world hunger) 330—E; (foods of plant origin) [Maynard & Nelson] ★1013
- Council on Industrial Health, (appointment) 833; (emeritus chairman: Dr. Seeger) 833
- Council on Medical Education and Hospitals, (appointments) 475; (plan for uniform intern placement) 713; (survey of medical education) 833
- Council on Medical Service, (Rhode Island Society's voluntary prepayment plan) 46 *(News Letter)* 187; 268; (regional conferences) 187; (report) 187; 268
- Council on National Emergency Medical Service, [Bortz] 183; 475; (consultant) 833
- Council on Pharmacy and Chemistry, actions of mercurial compounds on hemolytic streptococci) [Morton & others] ★37; (salt-poor human serum albumin in nephrosis; also staticin and caronamide, chlorguanide) 251; (advertising in the Journal and membership in Cooperative Medical Advertising Bureau) 399; 400—E; (annual meeting) 691; (protein and amino acid preparations) 692; (status of penicillin in treatment of syphilis) ★873; (prescribing pharmaceutic specialties; drug products not available in bulk forms) 935—E
- Council on Physical Medicine, (cancer of skin produced by ultraviolet rays; use of sun lamps) [Coblentz] ★1040; (tinted lenses) [Cowan] ★1098
- Council on Scientific Assembly, (report) 186; 259; (request for meeting with Committee to Study Revision of Constitution and By-Laws) 191
- Exhibit on medical aspects of atomic energy at Chicago session, 833
- expenses, increase in, 184; 475
- Fellowship, (dues increased to $12.00, Jan. 1, '48) 185; 188; 257; 269; (recording in new Directory) 403
- Film Library: See subhead: Motion Pictures
- finances, loss of approximately $170,495, 184; 475
- General Practitioner Award to Dr. Archer Chester Sudan, 178—E; 181; 184; (tribute to Dr. Sudan) 190; 191; 269; 475
- grants for research, 264
- Handbook, [Bortz] 183; 834
- headquarters, proposed new home, [Bortz] 183
- Hospital number postponed, 1050—E
- House of Delegates, (proceeding of Cleveland Interim Session) 181; 257; (address of speaker, Dr. Fouts) 181; 258; (report of committee to expedite work) 185; 259; (resolutions on limiting tenure of office) 189; 260
- Hygeia, (sent to legislators, Ind.) 122
- Interim Session: See also subhead: Cleveland Interim Session
- interim session, A. M. A. resolution on fixing date of, 189; 259
- Interim Session (1948), invitation from St. Louis, 191
- interim session (1949), invitation from New York, 190
- Joint Committee for Coordination of Medical Activities, 778
- Joint Committee on Evaluation of Tuberculosis Control, 475
- Joint Committee on Health Problems in Education: "Health Appraisal of School Children," 698; 780
- Journal, (cost of printing an individual copy) 184; (subscription price increased to $12) 185; 188; 257; 269; (advertising and membership in Cooperative Advertising Bureau) 399; 400—E; (index to, to be published later) 1100—E
- Journals, special, Archives of Internal Medicine special number honoring Osler centenary, 483
- Journals, special, Archives of Surgery, new features, 881—E
- *Judicial Council* Dr. Lloyd Noland resigns, 833
- medical mission to Puerto Rico and Virgin Islands, [Irons] ★979

AMERICAN MEDICAL ASSOCIATION—Continued

- membership, (recording in new directory) 403
- Motion Picture Film Library, List of Pictures Reviewed: See Moving Pictures, Medical
- motion picture film library, new pictures added, 420
- motion picture (medical) film for British Medical Association, 834
- motion pictures not to be made by; continue policy of operating judging and lending bureau of films, 475
- National Conference on Rural Health, (proceedings) 773
- New and Nonofficial Remedies, complimentary copies to students discontinued, 692
- *News Letter*, 187; 268
- nurse anesthetists, condemns article in lay press on, 834
- officers, deaths in 1947, 253—E
- panel discussion on modern management of heart disease, [DeGraff] ★1025; [Gold] ★1027; [Katz] ★1028; (discussion) 1032
- Physical Medicine Session at Chicago session, 833
- platform, Ten Point National Health Program, 261; 265; 695—E
- President Bortz (address at Cleveland Interim Session) 182; 258; (remarks on need for World Health Organization) 988—OS; (guest speaker at Naval Medical Center) 990; (honored by Westmoreland County Medical Society) 1106
- President-elect Sensenich, presented, 184
- printers strike, 770—E
- **Proceedings of Cleveland Interim Session, 181; 257**
- public relations of, [Bortz] 182; (Theodore R. Sills & Co. retained by) 266; (Mr. L. W. Rember in charge of) 267
- radio programs, (Doctors Today), 45; 119; 882; 1052; (Doctors, Then and Now) 119; 403
- Reference Committee on Amendments to Constitution and By-Laws, (report) 257
- Reference Committee on Legislation and Public Relations, (report) 257; 260
- Reference Committee on Medical Education, (report) 258
- Reference Committee on Medical Service, (report) 268
- Reference Committee on Miscellaneous Business, (report) 260
- Reference Committee on Reports of Board of Trustees and Secretary, (report) 258
- Reference Committee on Reports of Officers, (report) 258
- Reference Committee on Rules and Order of Business, (report) 259
- Reference Committee on Sections and Section Work, (report) 259
- Reference Committees, (membership) 182
- representative group arrives to survey medical needs, Puerto Rico, 413; [Irons] ★979
- representatives, appointment, 833
- representatives at first International Poliomyelitis Conference, 475
- representatives at National Conference on Family Life, 475
- representatives at World Medical Association, 185; 257
- representatives or consultants to various organizations (listed), 265
- represented by Dr. L. H. Bauer at National Health Council meeting, 475
- resolution endorsing National Multiple Sclerosis Society, 189; 258
- resolution on American Red Cross blood program, 190; 269
- resolution on diagnosis of tuberculosis, 190; 260
- resolution on distribution of interns, 189; 258
- resolution on exploiting professional services by hospitals, 189; 260
- resolution on exposing federal employees efforts to socialize medicine, 268
- resolution on fixing date of A. M. A. interim session, 189; 259
- resolution on geographic selection of A. M. A. Trustees, 190; 260
- resolution on grants-in-aid to all states regardless of need, 189; 257
- resolution on intern and resident training, 188; 258
- resolutions on limiting tenure of office of delegates, 189; 260
- resolution on physical examination of immigrants, 190; 260
- resolution on practice of pathology by hospitals, 190; 260
- resolution on propaganda distributed to armed forces: "Is your health the Nation's Business?" 190; 257
- resolution on proper integration of training of nurses, 188; 268
- resolution requesting amendment to by-laws to increase A. M. A. fellowship dues and subscription price of Journal, 185; 188; 257
- Secretary, Dr. Lull, address of welcome at National Conference on Rural Health, 773
- Section on Diseases of Chest, created, 186; 257

AMERICAN MEDICAL ASSOCIATION—Continued
  Section on Experimental Medicine and Therapeutics panel discussion on recent advances in therapeutics, [Rivers] *291; [Bockus] *293; [Barnes] *299; [Rhoads] *305; [Haden] *308; [Waring] *311; [Thompson] *314
  Section on Gastro-enterology and Proctology joint symposium on peptic ulcer, [Feldman] *736; [Rafsky & others] *739; [Walters & others] *742; [Marshall & Welch] *748; [Thompson] *752; (discussion) 759
  Section on Internal Medicine, panel discussion on recent advances in therapeutics, [Rivers] *291; [Bockus] *293; [Barnes] *299; [Rhoads] *305; [Haden] *308; [Waring] *311; [Thompson] *314
  Section on Miscellaneous Topics, 186; 259
  Section on Ophthalmology invitation from Ophthalmological Society of Australia, 176
  Section on Pathology and Physiology, (symposium on virus disease) [Schultz] *1075; *[Smadel] *1079; [Wyckoff]* *1081; [Dingle] *1084; [Francis & others] *1088
  Section on Physical Medicine establishment, 187
  Section on Surgery, joint symposium on peptic ulcer, [Feldman] *736; [Rafsky & others] *739; [Walters & others] *742; [Marshall & Welch] *748; [Thompson] *752; (discussion) 759
  sections, (annual conference of secretaries of, Oct. 18, 1947) 187; (reorganization) 187; (centennial celebrations) 187
  Session on Legal Medicine in Section on Miscellaneous Topics, requested, 186; 259
  television programs extended, 403
  Therapeutic Trials Committee, (Council discusses), 692
  Truman's message to Congress, 177—E
  Trustees: See subhead: Board of Trustees
  Woman's Auxiliary: See Woman's Auxiliary
  World Health Organization approved by, 935—E; (Dr. Bortz's statement) 988; (propose establishing international medical school by) [Colvin] 573—C; [Smyth] 1000—C
  World Medical Association supported by, 185; 257; 176; 935—E
AMIDON: See Methadon
AMIGEN, injections in surgery, [Stewart & others] *1017
AMINO ACIDS and proteins in surgery, 101—E
  growth in relation to, [Elvehjem] *917
  in diet of patient with peptic ulcer, [Bockus] *293
  preparations and protein, (Council report) 692
  preparations, N.N.R., (Mead Johnson) 933
  rate of liberation from a given protein, [Elvehjem] *917
  treatment of protein deficiency in surgical patients, [Stewart & others] *1017
  treatment, research by Hektoen Institute, 338
AMINOPHYLLINE, *intravenous injection, fatal* reactions, [Bresnick & others] *397; (syndrome of "speed shock") [Hyman] 895—C
  N.N.R., (Abbott) 829; (Breon; Lincoln Lab.) 933
  value in coronary or other types of heart disease, (discussion) 1027—ab
AMMONIATED mercury ointment, child of 3 years eats 2 teaspoonfuls, 360
AMMONIUM chloride as diuretic, (discussion) 1026—ab
  chloride or nitrate to enhance mercurial diuresis, [DeGraff] *1026
  tetraethyl ammonium chloride, in arterial insufficiency, [Cooper] 502—ab
  tetraethyl ammonium chloride in hypertension, [Lyons & others] *608
AMPUTATION: See also Limbs, Artificial
  Amputee Institute, 787
  phantom limb, 1073
  stumps, painful, 200
AMYLASE, serum, elevated in alcoholic addicts, [Donzalski] 1065—ab
ANALGESIA: See Anesthesia; Pain, relief of
ANAPHYLAXIS AND ALLERGY: See also *Asthma; Dermatitis venenata; Eczema; Hay* Fever
  allergens of house dust, 289; [Rimington] 503—ab
  allergens of mill dust, [Jimenez-Diaz] 949—ab
  allergic warm season conjunctivitis, 345
  allergy from perspective of general medical practice, [Alexander] *762
  American Allergy Foundation, 483
  etiology of toxemia of pregnancy, [Edlen] 951—ab
  fatal reactions to aminophylline, [Bresnick & others] *397; (reply) [Hyman] 895—C
  fatigue of allergic origin in behavior problems, [Randolph] 581—ab
  fellowship in allergy at Northwestern U., 338
  Fiberglas-filled Sleepytime Pillow, 398
  immunity to diphtheria in allergic children, [Peshkin] 949—ab
  panarteritis in allergic persons, [Miale] 1067—ab
  Philadelphia Allergy Society Lillian Snyder Award, 635
  practical aspects of allergic rhinitis, [Criep] *601
ANAPHYLAXIS AND ALLERGY—Continued
  sensitivity to cottonseed, 732
  sensitivity to digitalis, (discussion) 1027—ab
  sensitivity to drugs, [Sherman] 491—ab
  sensitivity to drugs and bacteria, [Lowell] *665
  Sensitivity to Light: See Light sensitivity
  sensitivity to penicillin; plea for more accurate reports; can different menstrum be made, [Keefer] 321—ab
  sensitivity to penicillin, tests for, 70
  sensitivity to quinidine, [Barnes] 304—ab
  sensitivity to streptomycin, [Strauss] 64—ab
  sensitivity to strontium salicylate, 592
  sensitivity to sulfonamide ointments, [Gottschalk] *716—ab*
  sensitivity to tetanus antitoxin, 1118
  treatment, elimination diet in hypertension, [Gay] 56—C
  treatment, sex hormones, [Hartman] 422—ab
ANASTOMOSIS: See Colon; Vas Deferens
ANATOMY, history of, 128
  Morbid: See Pathology
ANCYLOSTOMIASIS, *asthma caused by? 850*
  in American servicemen; establishment in Southern United States, [Loughlin & Stoll] *157
ANDERSON, DONALD, appointed to Board of Civilian Consultants, 563
ANDROGENS, testosterone, new low in promotion of: partial quotation from Dr. W. O. Thompson's article, 558—E
  testosterone treatment of breast cancer, [Rhoads] 307—ab
  testosterone treatment of coronary heart disease, (discussion) 1031—ab
  testosterone treatment of hypogenitalism, [Hurxthal] *12
  testosterone treatment of schizophrenia, 360
  treatment; castration in women after mastectomy for cancer, 432
  treatment of impotence and dysmenorrhea, 730
  urinary excretion and testicular cytology, [Goldzieher] 353—ab
ANEMIA: See also Anemia, Pernicious
  aplastic, develops during use of streptomycin; [Deyke & Wallace] *1098
  diaphragmatic hernia relation to, [Ritchey] 844—ab
  hemolytic, autoagglutinins in, [Renner] 722—ab
  hemolytic, erythrocytic inclusions in, [McFadzean] 66—ab
  macrocytic, folic acid in, [Haden] 310—ab
  megaloblastic, in infants, [Aldrich] 799—ab
  secondary, from welding fumes, 658
  secondary, in aged, 1073
  secondary, treatment, [Haden] 310—ab
  sickle cell disease, Brazil, 1061
  sickle cell, rapid test using Bacteria subtilis, [Singer & Robin] *1021
  sickle cell, with severe hematuria, [Abel & Brown] *621
  treatment, antianemic substances, [Elvehjem] *915
  treatment, folic acid, [Rambert] 726—ab; [Elvehjem] *916
  treatment, rational, [Hoffman] 1005—ab
ANEMIA, PERNICIOUS, in childhood, [Kade] 506—ab
  spinal cord symptoms, treatment, [Haden] 309—ab
  treatment, crude liver vs. liver extract, [Haden] 310—ab
  treatment, folic acid cause actual increase in neurologic relapses, [Haden] 310—ab
  treatment, folic acid vs. liver extract, 772—E
  treatment, hydrochloric acid not recommended, [Haden] 310—ab
  treatment, liver extract, 601—ab; 657
  treatment, technic, [Haden] 310—ab
  treatment, predigested beef liver, [Bahner] 141—ab
ANESTHESIA, caudal continuous, newborn mortality and morbidity with, [Hingson & others] *221
  caudal, for relief of pain in intractable pelvic cancer, 792
  for bronchoscopy and laryngoscopy, [Lorhan] 716—ab
  in obstetrics, 731
  Spinal: See also Anesthesia, caudal continuous
  spinal, meningitis after, [Davidson] 427—ab
  spinal, nupercaine dilutions in, [Fisher] 645—ab
ANESTHESIOLOGY, new department, at Medical College of Virginia, 704
ANESTHETISTS, nurse, American College of Surgeons resolution approving, 839
  nurse, A. M. A. condemns article in lay press, 834—OS
  nurse, Southern Surgical Association resolution on, [Blalock] 279—C
ANEURYSM, arteriovenous pulmonary, [Watson] *950—ab*
  dissecting, of aorta with arachnodactylia: Marfan's syndrome, [Tobin] 498—ab
  of coronary arteries in infant, [Pickard] 719—ab
  of pulmonary artery, [Deterling] 60—ab
  spontaneous subarachnoid hemorrhage originating from, [Hamby] *522
  syphilitic, [Barnes] 304—ab
ANGINA, Agranulocytic: See Agranulocytosis, Acute
  Monocytic: See Mononucleosis, Infectious
ANGINA PECTORIS, psychosomatic phenomena, [Burch & Ray] *1011
ANGIOMA: See also Hemangioma
  of nervous system, [Naffziger & Boldrey] **101*
  of spinal cord, [Naffziger & Boldrey] *102
ANGIOSARCOMA of bone, [Phemister] *551
ANGIOSPASM, cerebral, papaverine in, [Russek & Zohman] *930
ANILINE poisoning, Belgium, 842
ANIMALS: See also under names of specific animals as Dogs; Fish; Hogs; Rats
  how to put sick and injured pets out of their misery, 289
  iron in, 612
  poliomyelitis virus source, [Francis & others] *1088
  poliomyelitis virus transmitted to, 641
  rabies diagnosed by inoculating saliva into, 253—E
  Senator Langer would compare nation's expenditures on human beings and, 780—OS
ANION exchange resins, treatment of peptic ulcer, [Boles] *531
ANKYLOSTOMIASIS: See Ancylostomiasis
ANNUAL Conference; Congress: See American Medical Association
ANOMALIES: See Abnormalities
ANOREXIA: See Appetite
ANOXEMIA: See Blood oxygen
ANTHELONE, treatment of peptic ulcers, [Bockus] *295
ANTHRAX, treatment, penicillin, [Mann] 212—ab
ANTIBIOTICS: See also Penicillin; Streptomycin
  administration, new principle, France, 199
  administration, what is micronized method? [Waring] 313—ab
  mixtures, [Keefer] 320—ab
  polymyxin, [Schoenbach & others] *1096
  treatment, aerosol, of respiratory disease, [Bryson] 581—ab
  treatment of chronic ulcerative colitis, [Bockus] 297—ab
  treatment of common cold, [Rivers] 292—ab; [Keefer] 321—ab
  treatment of multiple sclerosis, 730
ANTIBODIES: See also Agglutinins
  in vitamin deficiency states, [Axelrod] 502—ab
  newer concept of allergy to drugs and bacteria, [Lowell] *665
  Rh: See Rh Factor
ANTICOAGULANTS: See Blood coagulation; Dicumarol; Heparin
ANTIGENS: See also Antibodies
  combined, treatment of rheumatoid arthritis, [Warter] 352—ab
  practitioner and virus diagnostic laboratory, [Smadel] *1079
  Rh: See Rh Factor
ANTIHISTAMINE: See Histamine
ANTI-INFECTIVES: See Bactericides
ANTIMONY potassium tartrate, dosage, (correction) 636
  sodium tartrate, treatment of kala-azar, [Adams] 285—ab
ANTIRETICULAR Cytotoxic Serum: See Bogomolets
ANTI-Rh antigen-antibody reaction factor, [Bloxsom] 1113—ab
ANTISEPTICS: See Bactericides
ANTISTIN, treatment of migraine, [Biro] 586—ab
ANTITOXIN: See Tetanus
ANURESIS: See Urine suppression
ANUS: See Hemorrhoids; Rectum
  Pruritus: See Pruritus
AORTA, Aneurysm of: See Aneurysm
  coarctation, [Crafoord] 67—ab; [Barnes] *302
  surgery, division of abdominal aorta for embolus, [Cooper] 1065—ab
APOPLEXY: See Brain hemorrhage
APPARATUS: See also Infra-Red Rays; Roentgen Rays; Sunlamps; Ultraviolet Rays
  hydraulic lift for patients with partial leg paralysis, [Wesselhoeft] 56—C
APPENDECTOMY fecal fistula after, (reply) [Cunningham] 1118
  streptomycin used intraperitoneally, 1074
APPENDICITIS, [Eckstrom] 139—ab
APPETITE: See *also Hunger;* Starvation
  anorexia after sulfonamides, niacin amide to prevent, [Goldstein] 950—ab
  anorexia nervosa, serum protein and forced feeding in, [Berkman] 63—ab
APPLES, nutritive value, [Maynard & Nelson] *1048
APRICOT-farina, Libby's Strained and Homogenized, 690
  nutritive value, [Maynard & Nelson] *1048
ARABINOSIS in fatal nephrosis produced by acacia, 557-E
ARACHNODACTYLY, Marfan's syndrome, [Tobin] 498—ab
ARACHNOIDITIS with tuberculosis, 510
ARALEN diphosphate-Winthrop, N.N.R., (description) 1049

ARCHIVES: See American Medical Association, journals, special
ARCHIVOS: See Journals
ARGENTINE Congress of Bronchoesophagology (1st), 346; 794
  Congress of Tuberculosis, 278
  universities, new law, 793
ARGYRIA, treatment, BAL, 432
ARKANAS, tularemia in, [Rigdon] 1113—ab
ARMED FORCES: See also Army; Navy; World War II
  A. M. A. resolution on propaganda distributed to: "Is your health the nation's business?" 190; 257
  Committee on Medical and Hospital Services of, tour of inspection, 631
  defense secretary recommends reexamination of pensioned officers, 698—OS
  physicians for, increase in shortage, 834—OS
  retirement pension systems, 630—OS; 698—OS
  unification of medical services, board to study, 191; 271
ARMS: See also Extremities; Fingers; Hand; Humerus; Shoulder
  Amputation: See Amputation
  Artificial: See Limbs, Artificial
  disability, transplant teres major and latissimus dorsi, [Zachary] 584—ab
  ergograph to evaluate disability, [Hellebrandt] 1113—ab
  pain in upper arm, brachial neuralgia; procaine for, (reply) [Krynicki] 72
  swelling, (postmastectomy) [Hanelin] 799—ab
ARMY, French, skin reaction to tuberculin in, [Debenedetti] 725—ab
  Norwegian, venereal disease in, 999
ARMY, UNITED STATES: See also Armed Forces; World War II
  atomic bomb chief promoted, 410
  blind workers' products bought by, 884
  Chemical Center, symposium on physiology of acetylcholine, 884
  chemical plant leased to penicillin manufacturer, 47
  chief dietitian made a lieutenant colonel; Major Helen C. Burns, 938
  chief may seek aid of civilian doctors, 561—OS
  chloromycetin treatment of scrub typhus tested in Malaya, 409
  Commendation: See World War II, Heroes
  commissioning procedures (new), 47
  consultants assist in new overseas program, 409
  consultants (civilian) tour Pacific and European areas, 884
  course in physical reconditioning, 783
  general nominated for promotion, 120
  graduate education for medical officers in American zones of occupation (Joint Committee report), 779—OS
  group to study cholera epidemic in Syria, 121
  health during winter, 1053
  historians of World War II meet, 478
  Hospitals: See Hospitals, Army
  Institute of Pathology, 1053; 1103
  Medical Corps teaching basic sciences, 409
  medical department, affiliated units of, 120
  medical department, promote 13 generals, 478
  Medical Library, (symposium on medical subject headings) 204; (Letterman exhibit) 410; (needs help) 410; (acquires "Great Herbal") 783
  Medical Officers: See also World War II
  medical officers, graduate education, in American zones of occupation. (Joint Committee report) 779—OS; 780—OS
  medical officers, improvements in advanced training for, 120
  medical officers meet in Korea, 120; 409; 835; 1103
  medical officers, new professional training opportunities, 1053
  Munson shoe last modified by, 938
  nurse corps reserve, 835
  officer selection boards to meet, 409
  preventive medicine specialty board, 783
  raincoats, dermatitis patch testing, 850
  reenlistments for GI's crowded out of colleges, 192
  reexamination military men retired for disability, 561—OS
  reserve officers, program for, 1103
  scientist added to assistant secretary's staff, 192
  social hygiene in Fort Knox experiment, 1111
  social workers in, shortage, 47
  Surgeon General's Office, new assignments in, 1103
  training in neuropsychiatry, 192
  Unification Plan: See Armed Forces
  venereal disease control, 119—OS; 835
ARRHYTHMIA: See also Auricular Fibrillation; Ventricular Fibrillation
  paroxysmal, use of quinidine, [Katz] ★1029
ARSENAMIDE, (Council report), 251
ARSENIC, treponemicidal action and BAL, [De Oreo] 647—ab
ARSENICALS: See also Arsphenamine; Oxo-
  [illegible] ton] 647—ab
  [illegible] corneal changes
  [illegible])—ab
ART: See Physicians' avocations
  Portraits: See Portraits (cross reference)
ARTERIECTOMY: See Arteritis obliterans
ARTERIES: See also Aorta; Arteriosclerosis; Blood Vessels; Ductus Arteriosus; Veins
  aberrant, hydronephrosis with, [Stewart] 210—ab
  aberrant right subclavian, syndrome, [Brean] 897—ab
  accidents (fatal), penicillin treatment, [Courty] 505—ab
  Aneurysm See Aneurysm
  anoxemia, cyanosis as sign, 44—E
  brachial, inject acetylcholine into, in myasthenia gravis, [Wilson] 802—ab
  cerebellar, thrombosis syndrome, [di Cio] 654—ab
  Coronary: See also Angina Pectoris
  coronary, aneurysms in infant, [Pickard] 719—ab
  coronary dilator: nikethamide (coramine) (discussion) 1031—ab
  coronary disease, painful shoulder in, [Schott] 504—ab
  coronary disease, value of aminophylline in, (discussion) 1027—ab
  coronary disease, vitamin E treatment, 810
  coronary diseases (acute), diagnosis; treatment, [Master] 582—ab
  coronary heart disease, value of testosterone in, (discussion) 1031—ab
  coronary insufficiency, pitressin test, [Ruskin] 60—ab
  Coronary, Occlusion: See also Thrombosis, coronary
  coronary occlusions (acute), [Doles] 722—ab
  disease (obliterative), sympathectomy for, [Freeman] 898—ab
  Embolism: See Embolism
  excision in arteritis obliterans, [Leriche] 65—ab
  Inflammation: See Arteritis
  insufficiency, tetraethylammonium chloride in, [Cooper] 502—ab
  meningeal, procaine injection, ligating or resecting for cephalalgia, [Haynes] ★538
  Pressure in: See Blood Pressure
  pulmonary, aneurysm of, [Deterling] 60—ab
  pulmonary, cor pulmonale, 44—E
  roentgen study, abdominal arteriography, [Wagner] 495—ab
  roentgen study, cerebral arteriography in differential diagnosis of endocranial tumors, 54
  roentgen study, cerebral arteriography in subarachnoid hemorrhage, [Wechsler & Gross] ★517
  Temporal: See also Arteritis
  temporal, procaine injection, ligating or resecting for cephalalgia, [Haynes] ★538
ARTERIOGRAPHY: See Arteries, roentgen study
ARTERIOSCLEROSIS and diabetes in youths, [Lesser] 643—C; [Ross] 893—C
  ductus arteriosus and, 238—ab; [Blumenthal] 498—ab
  treatment, sympathectomy, [Freeman] 898—ab
ARTERITIS: See also Periarteritis
  cranial, its occurrence in a young woman, [Meyers & Lord] ★169
  Necrotizing: See Periarteritis nodosa
  obliterans, arteriectomy in, [Leriche] 65—ab
  obliterans, sympathectomy for, also parathyroidectomy, [Welti] 904—ab
  panarteritis in allergic persons, [Miale] 1067—ab
  temporal, [Hoyne] 423—ab
ARTHRALGIA, intermittent: periodic disease, [Reimann] ★242
  penicillin, 732
ARTHRITIS: See also Rheumatism
  Atrophic; Chronic: See Arthritis, rheumatoid
  Reiter's disease, mapharsen for, [Khoury] 135—ab
  rheumatoid, and heart, 1061
  rheumatoid, in children, [Pickard] 1067—ab
  rheumatoid, may be psychosomatic disease, 1081—ab
  rheumatoid, plasma viscosity in, [Cowan] 426—ab
  rheumatoid, treatment: combined antigens, [Warter] 352—ab
  treatment, antireticular cytotoxic serum, [Rogoff] 205—ab
  treatment, succinate-salicylate, [Szucs] 196
ARTIFICIAL Limbs: See Limbs, Artificial
  Pneumothorax: See Pneumothorax, Artificial
ARTISTS: See Physicians, avocations
ARTRON Sun Lamp, Type A, 690
ASCITES, control in liver cirrhosis, 289
  peritonitis with, [Laederich] 586—ab
  treatment, Crosby-Cooney glass button operation, [Lord] ★767
  treatment, glass button operation, failure, [Welch] 649—ab
ASCORBIC Acid: See Acid
ASPERGILLOSIS, [Cawley] 497—ab
ASPERGILLUS niger, antibacterial activity, 894
ASPHYXIA: See also Carbon Monoxide; Suffocation
  in child by sulfonamide tablet, [Heald] 348—C
  neonatorum, 358
ASPHYXIA—Continued
  neonatorum, predelivery administration of oxygen to mother, [Bushnell] 1000—C
  neonatorum, resuscitation, [Atherton] 503—ab
ASPIRATION Biopsy: See Biopsy
  endocavitary, [Monaldi] 653—ab
ASPIRIN: See Acid, acetylsalicylic
ASSOCIATION: See also American Medical Association; list of Societies at end of letter S
  of American Medical Colleges, note on inception in 1890, [Friedenwald] 946—C
  of American Medical Colleges, survey of medical education by A. M. A. and, 833—OS
ASTHENIA: See also Fatigue; Myasthenia
  neurocirculatory, heart size in, [Carlotti] 60—ab
ASTHENOPIA and contact lenses, 434
ASTHMA, bronchology in, [Clerf] ★734
  cardiac, use of epinephrine in, (discussion) 1027—ab
  complications: pulmonary tuberculosis, [Cohen] 421—ab
  etiology, hookworm infestation? 850
  treatment, digitalis in prolonged attack, 592
  treatment of status asthmaticus, (replies) [Barach; Rowe] 512
ASTROCYTOMA of nervous system, [Naffziger & Boldrey] ★97
ATABRINE: See Quinacrine
ATAXIA, Locomotor: See Tabes Dorsalis
ATELECTASIS: See Lungs collapse
ATHEROSCLEROSIS: See Arteriosclerosis
ATHLETICS: See also Exercise; Golf; Physical Education
  brain injury from high school boxing, 907
  pain after injury to testicle, relieve by manipulating spine, 592
ATMOSPHERE: See Air
ATOMIC ENERGY, bomb attack, experts say physicians are unprepared for, 1052—OS
  bomb chief promoted: General Groves, 410
  bomb, nation urged to match total war with total medicine, 988—OS
  fellowships, [Warren] 418—C; 701; 939
  grant for training nuclear scientists, Mass., 703
  medical aspects, exhibit at Chicago session, 833—OS
  medicine, course in, 410
  Smashing: See Cyclotron
  steering committee, 635
  therapeutic agent, 510
  therapeutic use on blood ailment described, 698—OS
  training center at U. of Rochester to teach how to treat casualties, 123
  U. S. Atomic Energy Commission, (message of consultant, Shields Warren, to A.M.A.) [Bortz] 183; (new Advisory Committee on Isotope Distribution) 336; (to support cancer research) 836; (radioactive isotopes go to foreign countries) 939; (additional funds recommended for) 988
ATROCITIES, ethics governing service of prisoners as subjects in medical experiments, Gov. Green's Committee report, ★457
ATROPHY, infantile, desoxycorticosterone for, [Forssell] 286—ab
ATROPINE, ventricular tachycardia inhibited by, [Wilburne] 714—ab
AUREX Hearing Aid, Model H, 1099
AURICULAR FIBRILLATION, quinidine for, [Katz] ★1030
AURICULAR FLUTTER quinidine for, [Katz] ★1030
AUSCULTATION, stethoscope, of abdomen to locate tip of Miller-Abbott tube, [McLanahan] ★35
AUSTRIA, sickness insurance in, [Hermann] 202—C
AUTOHEMOTHERAPYY: See Hemotherapy
AUTOMOBILES, accidents (statistics), National Safety Council report, 568
  bus trips, foot edema during, 358
  drivers, epileptic persons are unsafe drivers, [Wartenberg] 1062—C
  motorized tuberculosis clinics, Va., 273
  petrol concessions to doctors, England, 199
AUTOPSIES, amendments to French laws on, 488
AVIATION: See also Altitude, high
  acceleration (positive), permanent effects from repeated blackouts? [Wood] 208—ab
  airsickness and earache, 288
  DDT dusting during cholera epidemic, Egypt, 990
  fainting and flying, 830—E
  health regulations for air travel, England, 1060
  medical examiners, graduate, 47
  medicine, Air University School of, special research position open, 1103
  medicine, School of, Randolph Field, Tex., 990
  mosquitoes (exotic) transported by plane, [Miller] 1006—ab
  National Research Council committee visits Randolph Field, 1103
AVITAMINOSIS: See Vitamins deficiency
AVOCATIONS: See Physicians, avocations
AWARDS: See Prizes
  for Military Service: See World War II, Heroes
AZOTEMIA: See Uremia

B

BACH, JOHN, introduction and address of A. M. A. press director, 267
BACILLUS: See Bacteria
BACITRACIN, [Keefer] 320—ab
BACK: See Spine
  Pain in: See Backache
BACKACHE: See also Sciatica
  at night, 591
  severe, 116
BACON Lecture: See Lectures
BACTEREMIA, Alcaligenes faecalis, [Terry] 64—ab
BACTERIA: See also Staphylococcus; Streptococcus; Tubercle Bacillus, etc.; under names of organs
  Abortus Infection: See Brucellosis
  allergy to, newer concept, [Lowell] *665
  bacteriostatic actions of some mercurial compounds, (Council report) [Morton & others] *36
  bacteriostatic effect of cod liver oil, [Solomides] 355—ab
  cytochemical mechanisms of action of penicillin, [Pratt] 899—ab
  in Blood: See Bacteremia
  Infection: See Infection
  Lactobacillus Casei Factor (Synthetic): See Acid, folic
  Loeffler's: See Diphtheria bacillus
  polymyxa, antibiotic (*polymyxin*) *from*, [Schoenbach & others] *1096
  Soil, Preparation from: See Tyrothricin
  subtilis, rapid test to demonstrate sickle cells, [Singer & Robin] *1021
  Tularense Infection: See Tularemia
BACTERICIDES: See also Antiseptics; Disinfectants
  actions of cod liver oil, [Solomides] 355—ab
  actions of mercurial compounds, (Council report) [Morton & others] *37
BACTERIOLOGY: See Bacteria; Microbiology
BACTERIOSTASIS: See Bacteria
BACTERIUM: See Bacteria
BAEZA, MARCIO, Pensacola news, 563
BAGASSE disease of lungs, [LeMone] 650—ab; 1050—E
  pathogenicity, [Gerstl] 498—ab
BAKER, Christensen Heat Cradle, 175
  Valverde Vasculator, 625
BAKERS: See Flour
BAL, effect (depressing) on treponemicidal action of arsenic, [De Oreo] 647—ab
  treatment of argyria, 432
  treatment of lead poisoning (correction) 50
BALANTIDIASIS, urinary, 1118
BALLOON, air inflated, used to locate tip of Miller-Abbott tube, [McLanahan] *35
BANDAGES: See Dressings
BANG'S Disease in Cattle: See Brucellosis
BANK, Therapeutic: See Blood Transfusion; *Bones*
BANTI'S SYNDROME: See Splenomegaly
BARBITURATES: See also Pentothal; Phenobarbital; Vinbarbital
BARDEEN Lecture: See Lectures
BARLEY, nutritive value, [Maynard & Nelson] *1045
BARLOW, CLAUDE H., infected himself with schistosomiasis to find cure, 1056
BARRETT, N. R., British lecturer abroad, 792
BARTZ, WALTER F., memorial post of American Legion honors, 195
BARUCH Committee on Physical Medicine, subcommittee on physical fitness report, [Darling & others] *764; 771—E
BASAL Metabolism: See Metabolism
BASEDOW'S Disease: See Goiter, Toxic
BASIC SCIENCES, Army Medical Corps teaching, 409
  graduate course, La., 1056
BASSOE, PETER, portrait to U. of Illinois, 1055
BATES, WILLIAM H., visual training for myopia, 1100—E
BATTERY, storage, casings, family outbreak of lead poisoning from, [Spizer] 800—ab
BAUER, L. H., appointed to represent A. M. A. at meeting called by National Health Council, 475
BAYLOR University College of Medicine dedicated, 994
BCG Immunization See Tuberculosis
BEANS: See *Soy Beans*
BEAUTY Preparation: See Cosmetics
BED Rest: See Convalescence
  Sores: See Decubitus
BEDDING: See also Pillows
  device for holding bedclothes from contacting patient's legs: 'Valverde Vasculator, 625
BEES: See Honey
BEHAVIOR: See also Mental Hygiene; Personality
  disorders of children 'result of encephalitis, [Greenebaum & Lurie] *923
  disturbance in first 2 years of life, [Spock] *811
  problems, fatigue of allergic origin in, [Randolph] 581—ab
BELGIAN Society of Occupational Medicine, 842
BELLERGAL, treatment of gastric ulcers, [Fredenhagen] 904—ab
BELL'S Palsy: See Neuropathy of facial nerve
BELYANDO: spasmodic paroxysms of vomiting before breakfast, 731
BENADRYL: See Diphenhydramine Hydrochloride
BENZOHYDRYL Alkamine Ethers: See Diphenhydramine Hydrochloride
BENZOPYRENE sarcoma, blood changes in rats with, 55
BEQUESTS: See Donations (cross reference)
BERIBERI, malnutrition of nervous system, [Brain] 583—ab
BESNIER-Boeck-Schaumann Disease: See Sarcoid, Boeck's
BEVERAGES: See also Milk; Water
  Alcoholic: See Alcoholism
  carbonated, composition of soda water, seltzer, club soda and charged water, 512
BEVERIDGE Plan: See National Health Service Act (England)
BIERMER'S Anemia: See Anemia, Pernicious
BILE salts for cholecystectomized patients, 907
BILE DUCTS: See also Bile; Gallbladder; Liver
  anomalies, [Lockwood] *678
  cancer, [Brunschwig] *28
BILHARZIASIS: See Schistosomiasis
BILIARY TRACT: See also Bile Ducts; Gallbladder; Liver
  radiomanometry, 945
BILLS, Doctor's: See Fees
  Legislative: See Laws and Legislation
BIOLOGIC PRODUCTS: See Serum; Vaccine
BIOLOGY, American Institute of Biological Sciences established, 788
  clinical, first International Congress, Paris, Nov. 20-23, 1947, 187
  experimental, Institute in National Institute *of Health*, 271
BIOPSY: See also Liver; Rectum; Stomach; Testis
  aspiration, in lesions of vertebral bodies, [Valls & others] *376
  aspiration, method, [Giraud] 586—ab
  cervical, in diagnosis of uterine cancer, [Ayre] *513
  trocar, of liver, [Volwiler] 352—ab
BIRDS: See Psittacosis
BIRTH: See Labor
  Multiple: See Twins
  Premature: See Infants, premature
  Rate: See Vital Statistics
  Stillbirth: See Stillbirth
BIRTH CONTROL: See Contraception
BISMUTH, effect on penicillin in blood stream, [Eames] 212—ab
  salts, unabsorbed, 290
  treatment of verruca, [O'Connor] 1006—ab
BITING, nail, 216
BLACKOUTS, repeated, caused by positive acceleration, in flyers, [Wood] 208—ab
BLACK TONGUE: See Tongue
BLACKWELL, ELIZABETH, great moral struggle, 229—ab
BLADDER: See also Urinary System
  cancer, radium needles in, [Lenz] 206—ab
  cancer, treatment, recent advances, [Rhoads] *306
  cystitis glandularis and mucin-secreting adenocarcinomas, [Patch] *825
  diverticula, possible congenital, 359
  dysfunction in tabes, transurethral resection for, [Emmett & Beare] *1093
  management after spinal injury, [Veseen] 651—ab
BLALOCK operation for tetralogy of Fallot, [Dodrill] 717—ab
BLEEDING: See Hemorrhage
BLINDNESS: See Conjunctivitis, infectious, acute, in newborn; Vision
  ambylopias due to tobacco, 842
  blind workers products, Army buys, 884
  National Society for Prevention of, 839
  repair of blind veterans' equipment, 701
BLISTER, Fever: See Herpes simplex
BLOOD, amylase (elevated serum) in alcoholic addicts, [Domzalski] 1065—ab
  ascorbemia in pulmonary tuberculosis, [Lafontaine] 951—ab
  Bacteria in: See Bacteremia
  Bank: See Blood Transfusion
  calcium, new test for hypocalcemia, 278
  carbon monoxide in, determination, [Harders] 725—ab
  Cells: See also Erythrocytes; Leukocytes
  cells, climate and blood count, 290
  changes during water diuresis, [Govaerts] 804—ab
  changes in rats with benzopyrene sarcoma, 55
  Circulation: See also Blood volume
  circulation (artificial), reanimation by, [Schwiegk] 428—ab
  circulation, impaired in duodenal and ventricular ulcers, [Hoffmann] 286—ab
  circulation, pathologically lowered frequency, [Stollreiter] 654—ab
  Clot: See Blood coagulation; Thrombosis
  coagulants to stop bleeding peptic ulcers, 1117
  Coagulation: See also Blood prothrombin
  Coagulation, Anticoagulant: See also Dicumarol; Heparin
  coagulation, anticoagulant in mesenteric thrombosis, [Engelman] 284—ab
  coagulation, anticoagulants in puerperium and gynecologic surgery, [Greene] 797—ab
BLOOD—Continued
  coagulation, anticoagulants in venous thrombosis, [Evans] 1070—ab
  coagulation in children with infectious diseases, [Ströder] 128—ab
  coagulation time vs. prothrombin time to regulate dicumarol dosage, 955
  coagulum, retraction elicited by thrombocytes, [Fonio] 429—ab
  Committee on Blood and Blood Derivatives of National Research Council, 565
  concentration and gastric ulcer, 1051—E
  concentration in fresh water and sea water drowning, 697—E
  Count: See Blood cells
  Donors: See Blood Transfusion
  Dyscrasia: See also Agranulocytosis, Acute; Anemia; Anemia, Pernicious; Erythroblastosis; Leukemia; Polycythemia
  dyscrasias, heparinemia in, [Barnard] 573—C
  Flow: See Blood circulation
  food value of, [Wilder & Keys] *24
  formation, cerebral center which regulates? 955
  groups A and B, heterozygotia in, [Dahr] 801—ab
  groups, designation and relative frequency, 431
  groups, etiology of toxemia of pregnancy, [Edien] 951—ab
  groups, recovery after receiving incompatible blood, [Young] 421—ab
  Groups, Rh Factor: See Rh Factor
  hematology, important advances, [Haden] *308
  Hematology Research Foundation, (fellowship) 889
  heparinemia in dyscrasias, [Barnard] 573—C
  individuality, 665—ab
  Hemoglobin: See Hemoglobin
  in Urine: See Hematuria
  Infection: See Bacteremia
  Injection of Whole Blood or Its Derivatives: See Blood Transfusion; Serum Therapy
  Italian Hematologic Association, 54
  Loss of: See Hemorrhage
  Menstrual: See *Menstruation*
  Methemoglobin in: See Methemoglobinemia
  oxygen, cyanosis as sign of arterial anoxemia, 44—E
  pattern in malignancy, [Haden] 310—ab
  penicillin concentration (serum), [Hewitt] 798—ab
  penicillin in, detection, 1117
  penicillin in, effect of giving bismuth on, [Eames] 212—ab
  penicillin levels vs. tissue levels, [Keefer] 320—ab
  Plasma: See under various headings of Blood; Blood Transfusion; Serum
  Platelets: See Purpura, thrombopenic
  platelets, thrombocytes eliciting retraction, [Fonio] 429—ab
  platelets, thrombocytic acroangiothrombosis, [Fitzgerald] 499—ab
  Preservation: See also Blood Transfusion, *blood banks*
  Pressure: See BLOOD PRESSURE
  Procurement Project: See Blood Transfusion
  proteins, electrophoresis and fractionation, 832—E
  proteins, normal protein concentration, 572
  proteins, salt-poor human serum albumin in nephrosis, (Council report) 251
  proteins (serum), in anorexia nervosa, [Berk*man*] 63—ab
  Prothrombin: See also Blood coagulation
  prothrombin response to vitamin K as liver function test, [Wahi] 652—ab
  prothrombin time, estimation, [Shapiro & Weiner] 418—C
  *prothrombin time vs. coagulation time to reg*ulate dicumarol dosage, 955
  sedimentation rate, changes in, 908
  sedimentation rate during pregnancy, 359
  Serum: See various subheads under Blood; *Blood Transfusion; Serum*
  sludged, 556—E
  splenectomy effect on, 144
  Sugar: See also Diabetes Mellitus
  sugar, alimentary hypoglycemia after gastric operations, [Gerrits] 505—ab
  sugar, hypoglycemia, two varieties, 288
  sugar, oral saccharin effect on, [Kun] 502—ab
  sulfamerazine and sulfadiazine levels not strictly comparable, 1009
  Tests: See Syphilis serodiagnosis
  Transfusion: See BLOOD TRANSFUSION
  Vessels: See BLOOD VESSELS
  Volume: See also Blood circulation
  volume, lumbodorsal splanchnicectomy, [Freis] 205—ab
BLOOD PRESSURE, change of altitude from sea level to 5,000 feet or vice versa effect, 908
  estrogens effect on, 290
  High: See Blood Pressure, High, *following*
  study on business men, 48
BLOOD PRESSURE, HIGH, essential, heredity in, 254—E
  treatment, dilute hydrochloric acid and low salt diet, 809

BLOOD PRESSURE, HIGH—Continued
  treatment, elimination diet, [Gay] 56—C
  treatment, lumbodorsal splanchnicectomy, [Freis] 205—ab
  treatment of varicose ulcer in man with, 71
  treatment, potassium thiocyanate in essential type, [Ruskin] 493—ab
  treatment, recent advances, [Barnes] ★300
  treatment, rutin, (discussion) 1032—ab
  treatment, rutin for capillary abnormality, [Griffith] 284—ab
  treatment, salt-free, nobody known to have died from, [Allen] 202—C
  treatment, sodium restriction, [Perera] 899—ab
  treatment, surgical, evaluated, 1115—ab
  treatment, surgical, factors limiting, [Heinbecker] 132—ab
  treatment, surgical, most satisfactory way? [Barnes] 303—ab
  treatment, tetraethylammonium chloride, [Lyons & others] ★608
  treatment, thoracolumbar sympathectomy, [Lord] 720—ab
  treatment, vitamin K in essential type, [Morelli] 725—ab
  vagotomy contraindicated? [Bockus] 298—ab
BLOOD TRANFUSION, 541—ab
  blood bank, American Red Cross opens blood collecting center, Kansas, 412
  blood bank, American Red Cross program, (A. M. A. resolutions on) 190; 269; (A. M. A. Committee to work with) 833
  blood bank, first Italian bank organized, Turin, 793
  blood banks, American Association of, Dallas, Tex., 567
  blood donor center near completion, Pa., 413
  great increase, England, 53
  of "trait" cells in sickle cell anemia, (addendum) [Singer & Robin] ★1025
  reactions, hepatitis, [Rivers] 292—ab
  reactions, recovery after receiving incompatible blood, [Young] 421—ab
  reactions, sensitization to Hr factor by, 180—E
  role in erythroblastosis; warning to physicians, [Hellman & Vosburgh] ★79
  sets, American Red Cross buys 43,000, 404—OS
  study, Brazil, 55
  transmission of malaria, [Rogers] 504—ab
  treatment of acute leukemia, 488
LOOD VESSELS: See also Aorta; Arteries; Capillaries: Cardiovascular System; Veins
  cerebral angiography, [Hodes] 495—ab
  cerebral angiospasm, papaverine in, [Russek & Zohman] ★930
  Disease: See also Arteriosclerosis; Phlebitis; Varicose Veins
  disease, vitamin E effect on, [Shute] 901—ab
  oxidized gauze controls hemorrhage from major vessel ,[Stewart & Cianos] ★932
  peripheral, disturbances, [DeBakey] 898—ab
  peripheral, influenced by psychic disturbances, [Burch & Ray] ★1011
  tubulo-vascular syndrome, 918—ab
LUE CROSS Plans: See Hospitals, expense insurance
LUE SHIELD prepaid health service plan, Paul R. Hawley heads, 270—OS
BLUMER'S shelf, tumors of, [McCrea] ★679
BOARD: See under specific names
  of Health:. See Health
  of Trustees: See American Medical Association
BODY, Dead, Examination: See Autopsies
  Growth of: See Growth
  Heat Production: See Metabolism, basal
  Height: See Dwarfism
  odor, 810
  Temperature: See Fever; Temperature, Body
  Weight: See Obesity
BOECK'S Sarcoid: See Sarcoid
BOGOMOLETS, antireticular cytotoxic serum in arthritis treatment, [Rogoff] 205—ab
BOILS: See Furunculosis
BOMBS: See Atomic Energy
BONE MARROW preparations, sickling phenomenon in, [Singer & Robin] ★1024
  puncture for diagnosis of typhoid in children, [Rogge] 427—ab
BONES: See also Cartilage; Cranium, Epiphyses; Orthopedics; Osteo—; Periosteum; Ribs; Spine; and under names of specific bones as Humerus; Tibia
  Atrophy: See Osteoporosis
  bank, establish, Penn., 49
  cancer, [Phemister] ★545
  dysplasia (fibrous), [Bogart] 206—ab
  Fractures: See Fractures
  granuloma (eosinophilic), [Bartels] 67—ab; [Ackerman] 897—ab
  granuloma inguinale (metastatic) from vagina and cervix uteri, [Packer & others] ★327
  growth, epiphysial arrest, 849
  growth (skeletal) and caloric restriction, [Handler] 1114—ab
  internal fixation, and neurorrhaphy, [Massie] 500—ab
  pain, methadon for, [Ishmael] 801—ab
  skeleton, orthopedic traction on, 346; 794
  Tuberculosis: See Spine
BONES—Continued
  tumors in infants and children, [Dargeon] ★459
  tumors, osteoid osteoma, [Sherman] 500—ab
  tumors, sarcoma, [Phemister] ★545
BOOKS: See also Journals; Library; Book Notices at end of letter B
  mold growth on, prevention, 658
BOONE, JOEL T., (shortage of physicians in armed forces on increase) 834—OS; (general inspector of medical dept, of Navy) 990
BORDEN Co. Foundation: See Foundations
BORNATE, lotion, N.N.R., (Wyeth) 1099
BORTZ, E. L., (address at Cleveland Interim Session) 182; 258; (remarks on need for World Health Organization) 988—OS; (guest speaker at Naval Medical Center) 990; (honored by Westmoreland County Medical Society) 1106
BOTALLO'S Duct: See Ductus arteriosus
BOWEL MOVEMENT: See Feces
BOWELS: See Intestines
BOXING, high school, brain injury from, 907
BOYS: See Adolescence; Children
BOY SCOUTS assistance by USPHS, 479
BRACHIAL PLEXUS lesions, transplant teres major and latissimus dorsi, [Zachary] 584—ab
BRAIN: See also Cranium; Head; Meninges; Nervous System
  abscess, complicating Fallot's tetralogy, [Hand] 719—ab
  blood supply, angiography, [Hodes] 495—ab
  blood supply, arteriography in differential diagnosis of tumors, 54
  blood supply, arteriography in subarachnoid hemorrhage, [Wechsler & Gross] ★517
  blood supply, papaverine in cerebral angiospasm, (vascular encephalography) [Russek & Zohman] ★930
  calcification of cerebral ganglions, [Camp] 650—ab
  cancer, [Naffziger & Boldrey] ★96
  carbohydrates utilized by, [Lewis] ★868
  center which regulates blood formation? 955
  chemistry of, [Lewis] ★866
  creatine detected in, [Lewis] ★868
  Disease: See also Epilepsy
  disease, hypertensive encephalopathy, hypertonic sugar solution and magnesium sulfate in, [Barnes] 304—ab
  electric shock to, in electrocution, [Dickson] 723—ab
  electroencephalogram changes in water intoxication, [Cohn] 1069—ab
  electroencephalogram in behavior disorders of children, [Greenebaum & Lurie] ★923
  electroencephalogram in intracranial tumors, [Buchthal] 803—ab
  electroencephalogram in poliomyelitis, [Pacella] 350—ab
  electroencephalographers meet, 274
  electroencephalography, (activated) [Kaufman] 1004—ab
  Hemorrhage See also Meninges hemorrhage
  hemorrhage (acute), study of, 482
  hemorrhage, emergency treatment of apoplexy, [Gilbert & de Takats] ★659
  hemorrhage, little strokes, 590
  hemorrhage, paralysis after, 658
  hemorrhage, spontaneous subarachnoid hemorrhage of aneurysmal origin, [Hamby] ★522
  hemorrhage, use of dicumarol or heparin, [Haden] 309—ab
  Inflammation See Encephalitis; Meningoencephalitis
  injury from high school boxing, 907
  midbrain-pituitary regulation of carbohydrate metabolism, 841
  schistosomiasis cause of granuloma, [Chang & others] ★230
  schistosomiasis, simulating neoplasm, [Hunt & others] ★686
  suppurative lesions, penicillin in, [Cairns] 652—ab
  surgery, cortical excision in focal epilepsy, [Penfield] 646—ab
  surgery, prefrontal leukotomy and depersonalization, [Shorvon] 584—ab; [Frankl] 724—ab
  surgery, prefrontal lobotomy, and autonomic nervous system, [Rinkel] 1004—ab
  surgery, prefrontal lobotomy for morphine addiction, [Mason & Hamby] ★1039
  surgery, prefrontal lobotomy under direct vision, [Scarff] 900—ab
  Syphilis: See Neurosyphilis
  tumors, development and progress of neurosurgery, 1030—E
  tumors, differential diagnosis by cerebral arteriography, 54
  tumors, electroencephalography in, [Buchthal] 803—ab
  tumors in children, [Dargeon] ★466
  tumors, metastatic, [Naffziger & Boldrey] ★101
  tumor, schistosomiasis simulating, [Hunt & others] ★686
  tumors, teratomas, [Müller] 803—ab
  water content [Lewis] ★867
  wounds (penetrating) of ventricles, [Schwartz] 1066—ab
BRAYTON Foundation: See Foundations
BRAZILIAN Society of Hygiene, 55
BREAD: See also Flour; Wheat
  enriched, forms of iron in, [Blumberg] 134—ab
BREAST: See also Lactation
  cancer, danger in producing by estrogens, [Rhoads] 307—ab
  cancer, gelatinous (colloid), [Bogetti] 586—ab
  cancer ,postmastectomy swelling of arm, [Hanelin] 799—ab
  cancer, radiation for, [Goin] 1113—ab
  cancer, relation to hormone, [Thompson] ★319
  cancer, treatment, recent advances, [Rhoads] ★305
  cancer, use of testosterone, [Rhoads] 307—ab
  cystic disease, [Pullinger] 285—ab
  Feeding: See Infants, feeding; Lactation
  hypertrophy in child, [Nogues] 586—ab
  hypoplasia and hormones, 658
  inflammation (acute puerperal), treatment, [Jeffrey] 354—ab
  inflammation (maternal), fatal staphylococcic poisoning of infant, [Selberg] 67—ab
  lesions (analogous), hidradenomas of vulva, [Cunningham] 582—ab
  Milk: See Milk, human
  small female, 360
  surgery, castration in women after mastectomy for cancer, 432
  surgery, radical mastectomy; prognosis after survival for 5 years, [McGraw] 62—ab
  surgery, swelling of arm after mastectomy, [Hanelin] 799—ab
  swelling (cyclic), periodic disease, [Reimann] ★244
BREATHING: See Respiration; Inhalation; Snoring
BREWER, HOWELL, personal, 784
BRIGGS, W. Paul, home town pharmacy plan, 193
BRITISH: See also England; World War
  Anti-Lewisite: See BAL
  Government, National Health Service Act: See National Health Service Act
  Journals: See Journals
  Medical Association (opposition to National Health Service Act) 127; 416; 571; 628—E; 640; 708; 893; (sends British lecturers abroad) 792; (A. M. A. gives Medical Motion Picture film to) 834; (annual meeting, June 25-July 2, 1948) 1060
  Medical Register, bill to install refugee doctors on, 199
  Red Cross: See Red Cross
BROADCASTING: See Radio; Television
BRONCHI: See Bronchus
BRONCHIAL Asthma: See Asthma
BRONCHIECTASIS after atypical pneumonia, [Royce] 1005—ab
  treatment, multiple segmental resection, [Overholt] 577—ab
  treatment; prevention, [Badger] 799—ab
  treatment, surgical, also bronchoscopy, [Clerf] ★734
BRONCHITIS: See also Laryngotracheobronchitis
BRONCHOESOPHAGOLOGY, Argentine Congress of, 1st, 346; 794
BRONCHOLOGY, progress in, [Clerf] ★733
BRONCHOSCOPY, anesthesia for, [Lorhan] 716—ab
  [illegible], [Clerf] ★733
[illegible] nchiectasis; Broncho—
[illegible]
  [illegible], 1021—ab; [Gagnon] 1068—ab
  cancer, emphysema as sign, [Rigler] 650—ab
  Fistula: See Fistula
  perforation in primary tuberculosis, [Valledor] 904—ab
  suppuration, penicillin instilled in, [Benard] 726—ab; [Metras] 951—ab
  syndrome, [Soulas] 141—ab
  tumors, hamartoma, [Itolz] 355—ab
BRONZE STAR: See World War II, Heroes
BROWN, CLARENCE J., personal, 700
BROWN, D. CHESTER, memorial to, 1105
BRUCELLOSIS, chronic, conclusions after 10 years, [Griggs] ★911
  hazards .of home butchering (infected beef), [Palm] 208—ab
  immunologic tests in, 657
  in children under 7, 590
  reactions to tests for, 1117
  treatment, streptomycin plus sulfadiazine, [Spink & others] ★382
  treatment: vaccine, also streptomycin, liver extract, adrenal cortex extract, vitamin B complex, strychnine-cacodylate, [Griggs] ★911
  treatment, what is the latest? [Keefer] 321—ab
BUBO, Climatic: See Lymphogranuloma, Venereal
BUILDINGS: See House; Housing
BUREAU, A. M. A.: See American Medical Association
BURNING Pain: See Causalgia
BURNS, HELEN C., chief dietitian made lieutenant colonel, 938
BURNS: See also Sunburn
  vitamin metabolism after, [Lund] 717—ab
BURTON-Hill Act: See Hill-Burton Act

BUS: See Automobiles
BUTCHERING: See Meat
BUTTER Substitute: See Oleomargarine
BUTTON, glass, operation for ascites, [Welch] 619--ab; [Lord] *767

BOOK NOTICES

Aalkjaer, V., Fluids, Electrolytes and Protein in Surgery, 431
Abdomen, Diagnosis of Acute Abdomen in Rhyme, 905
Accidents: See First Aid
Adams, H S., Milk and Food Sanitation Practice, 287
Adolph, E. F., Physiology of Man in the Desert, 1008
Alexander, H. L., Synopsis of Allergy, 656
Alexander, S , Walk with a Separate Pride, 953
Allergy, Synopsis of, 656
Alvarez Mena, S., Electrocardiografia clinica con estudio de derivaciones unipolares, 1007
Ambard, L., Le diabète et sa pathogénie, 69
America's Needs and Resources, 1071
American Medical Association Council on Pharmacy and Chemistry Annual Reprint of Reports for 1946, 213
  Private Enterprise or Government in Medicine, 905
American Sanatorium Association: Brief Historical Sketch, 953
Anatomy: See also Pathology; Physiology
  Buchanan's Manual of, 587
  Concise, 356
  for Students of Physiotherapy, Occupational Therapy and Gymnastics, 356
  Illustrations of, for Nurses, 656
  Surgical, Synopsis of, 1071
Andersen, H., translator, Antigonadotrophic Substances, 906
Anderson, C. G., Introduction to Bacteriological Chemistry, 728
Anemia, Pernicious, Contribuicao para o estudo hematológico e clinico da anemia perniciosa (moléstia de Addison-Biermer), 1007
Anesthesia, Short Handbook of Practical Anesthetics, 728
Antibiotics, *Penicillin Therapy Including*, 589
Appendicitis, Causation of, 287
Arithmetic, Pharmaceutical, 906
Artists, Molding and Casting for Moulage Workers, etc., 143
Atlas of Cardiovascular Disease, 113
Aviation, Elementi di fisiologia e patologia *dell'uomo in volo*, 509
Bacteriology, Introduction to Bacteriological Chemistry, 728
  Veterinary, 69
Baney, A. M., Medical Care and Costs in Relation to Family Income, 69
Barker, R. G., Adjustment to Physical Handicap and Illness, 508
Barone, A. M., Varicose Veins of Lower Extremity, 589
Bartley, S. H., Fatigue and Impairment in Man, 656
Baths, Public Baths and Health in England, 16-18th Century, 729
Bauer, L. H., Private Enterprise or Government in Medicine, 905
Bauer, W. W., Stop Annoying Your Children, 142
Behrman, H. T., Dermatologic Clues to Internal Disease, 143
Bellafiore, I. J., Pharmaceutical Arithmetic, 906
des
[illegible]
Bierman, W., Physical Medicine in General Practice, 848
Bing, R., Lehrbuch der Nervenkrankheiten in 30 *Vorlesungen*, 431
Biochemistry, Practical, Course in, 509
Biography: See Physicians
Biology, Die Bedeutung der Seelenkunde von Klages für Biologie und Medizin, 430
Blass, J. L., Successful Dental Practice, 1116
Blau, A. Master Hand: Study of Right and Left Sidedness; its *Relation to Personality* and Language, 954
Blood, Le pouvoir antiprotéolytique du sérum sanguin chez la femme, 805
  Précise de diagnostic hématologique, 213
Blood Pressure, What You Can Do for High Blood Pressure, 1071
Blood Vessels, *Cardiopatologia*, 287
Bonnet, P., Alterations de la retine en rapport avec les affections generales, 589
Borst, J. R., Acute and chronic carbon monoxide poisoning, 357
Boss, M., Sinn und Gehalt der sexuellen Perversionen, 507
Bowerman, W. G., Studies in Genius, 953
Boyd, W., Surgical Pathology, 1072
Brain, Intracranial Complications of Ear, Nose and Throat Infections, 507
Brehant, J., Le chirurgien en présence de l'etat diabétique, 727
Brookings Institution, Guarantee of Annual Wages, 1072
Brown-Sequard, Charles-Edouard, Nineteenth Century Neurologist and Endocrinologist, 357
Brucellosis, L'infezione brucellare nell'uomo, 69

BOOK NOTICES—Continued
Brunner, H., Intracranial Complications of Ear, Nose and Throat Infections, 507
Buchanan's Manual of Anatomy, 587
Burn, J. L., Recent Advances in Public Health, 213
Burrows, H., Biological Actions of Sex Hormones, 806
Calatroni, C. J., Endocrinologia sexual femenina, 1008
Cameron, A. T., Course in Practical Biochemistry, 509
Carb Monoxide Poisoning, Acute and Chronic 357
Cardiovascular Disease: See also Heart
  Atlas of, 113
Cardwell, V. E., Cerebral Palsied Child and His Care in the Home, 848
Carmichael, L., Reading and Visual Fatigue, 953
Castiglioni, A., Adventures of the Mind, 906
Cats, Hobday's Surgical Diseases of, 1071
Cazal, P., La réticulose histiomonocytaire, 508
Cecil, R. L., Textbook of Medicine, 112
Cerebral Palsied Child and His Care in the Home, 848
Charaka Club, Proceedings of, 729
Chemistry: See also Biochemistry
  Bacteriological, Introduction to, 728
  Inorganic, 357
  Practical, for Medical Students, 357
  Qualitative Analysis by Spot Tests, 213
Chenoweth, L. B., Introduction to Personal Hygiene, 728
Children: See also Infants; Pediatrics
  Cerebral Palsied Child and His Care in the Home, 848
  Overcoming Stammering, 951
  Stop Annoying Your Children, 112
Christian, H. A., Principles and Practice of Medicine, 112
Cicardo, V. H., Importancia biológica del potasio, 848
Clarke, C. D., Molding and Casting for Moulage Workers, Sculptors, Artists, Physicians, Dentists, etc., 143
Clendening, L., Methods of Diagnosis, 509
*Coelho, E., La pathogénie des altérations élec*trocardiographiques de la péricardite, 1007
Colcord, J. C., Your Community, 287
Color, Researches on Normal and Defective Colour Vision, 588
Committee on Scientific Aids to Learning, Reading and Visual Fatigue, 953
Condorelli, L., Lezioni di clinica medica, 1072
Conference on Fertility, 655
Contact Lens, Principles of, 1116
Contagious Diseases, Manual of, 431
Cookery, International Recipes, Simplified Diabetic Manual with, 848
Cornell Conferences on Therapy, 805
Counseling in Schools of Nursing, 143
Crosse, V. M., Premature Baby, 806
Cureton, T. K., Physical Fitness, Appraisal and Guidance, 905
Davis, M. E., DeLee's Obstetrics for Nurses, 729
Deafness, Train Your Hearing: Lessons for *Home Practice*, 287
Dearborn, W. F., Reading and Visual Fatigue, 953
Death, Dying, Apparent-Death and Resuscitation, 807
Deep Analysis: Clinical Study of Individual Case, 1008
Deficiency Disease, Studies in, 431
Delay, J., L'électro-choc et la psycho-physiologie, 729
DeLee's Obstetrics for Nurses, 729
Dentistry, Dental Caries: Its Etiology, Pathology, Clinical Aspects and Prophylaxis, 357
  Successful Dental Practice, 1116
  Your Teeth: And How to Keep Them, 954
Dermadromes, Skin Manifestations of Internal Disorders, 69
Dermatology, Common Skin Diseases, 727
  Dermatologic Clues to Internal Disease, 143
  Skin Manifestations of Internal Disorders, 69
Desert, Physiology of Man in the Desert, 1008
Dewhurst, J. F., America's Needs and Resources, 1071
Diabetes Mellitus, Le diabète et sa pathogénie, 69
  Le chirurgien en présence de l'etat diabétique, 727
  Simplified Diabetic Manual with 163 International Recipes, 848
Diagnosis, Lehrbuch der gynäkologischen Diagnostik, 589
  Methods of, 509
  Diagnostic neuro-chirurgical, 509
Diarrheal Diseases, Diagnosis and Treatment of, 807
Diet: See also Food; Nutrition
  Tropical Nutrition and Dietetics, 1071
Digitalis and Other Cardiotonic Drugs, 954
Directory, Public Welfare, 1947, 509
Disability, Adjustment to Physical Handicap and Illness: Survey of Social Psychology of, 508
Disease, Alterations de la retine en rapport avec les affections generales, 589
  Chronic Disease and Psychological Invalidism; Psychosomatic Study, 509

Dispensatory of United States of America, 805
Dock, W., editor, Advances in Internal Medicine, 729
Doctors: See Physicians
Doggart, J. H., Diseases of Children's Eyes, 587
Dogs, Hobday's Surgical Diseases of, 1071
Dosage and Solutions, 806
Drinker, C. K., Psychiatric Research, 729
Drugs: See also Chemistry; Pharmacology
  Dispensatory of United States of America, 805
  Solutions and Dosage, 806
Dying, Apparent-Death and Resuscitation, 807
Ear: See Deafness; Otorhinolaryngology
Economics, America's Needs and Resources, Estimates for 1950 and 1960, 1071
  Guarantee of Annual Wages, 1072
  Medical Care and Costs in Relation to Family Income, 69
  Medicine in the Changing Order: Report of New York Academy, 509
Edwards, L. F., *Concise Anatomy*, 356
Eggston, A. A., Histopathology of Ear, Nose and Throat, 357
Electric Shock, L'électro-choc et la psychophysiologie, 729
Electrolytes, Fluids and Protein in Surgery, 431
Endocrinology, Endocrinologia sexual femenina, 1008
  Essentials of, 1072
  of Neoplastic Diseases, 69
  Office, 806
Endoscopy, Endoskopie der Harnröhre, 589
Engle, E. T., Problem of Fertility, 655
Erskine, A. E., Practical X-Ray Treatment, 287
Exercises, Remedial, in Medical and Surgical Conditions, 1008
Eyes: See Ophthalmology
Family Income, Medical Care and Costs in Relation to Family Income, 69
Fatigue and Impairment in Man, 656
  Reading and Visual Fatigue, 953
Fausbøll, A. I., translator, Fluids, Electrolytes and Protein in Surgery, 431
Feigl, F., Qualitative Analysis by Spot Tests, 213
Ferguson, L. K., Surgery of Ambulatory Patient, 357
Fertility, Problem of, 655
First Aid at Sea and Ship's Medicine Chest, 728
Flook, E., Guide to Health Organization in United States, 507
Fluids, Electrolytes and Protein in Surgery, 431
Food: See also Diet; Nutrition
  Food and Milk Sanitation Practice, 287
  International Recipes, Simplified Diabetic Manual with, 848
Formulary, University Hospital, Ann Arbor, Mich., 805
Fractures, Internal Fixation of, 728
Fradkin, W. Z., Diagnosis and Treatment of *Diarrheal Diseases*, 807
Frauchiger, E., Die Bedeutung der Seelenkunde von Klages, 430
Fungus: See Mycology
Gastroenterology in General Practice, 953
Genius, Studies in, 953
Gianturco, V., translator, Adventures of the *Mind*, 906
Glasses, Principles of Contact Lens, 1116
Glingar, A., Endoskopie der Harnröhre, 589
Goetz, J. L., Public Welfare Directory 1947, 509
Gold, H., editor, Cornell Conferences on Therapy, 805
Gonadotropins, Antigonadotrophic Substances, 906
Gonioscopy, Treatise on, 431
Gordon, H. P., Counseling in Schools of Nursing, 143
Gottlieb, B., Dental Caries, 357
Government or Private Enterprise in Medicine, 905
Granit, R., Sensory Mechanisms of Retina, 430
Greek medical papyrus, Medical Writings of Anonymus Londinensis, 807
Greenblatt, R. B., Office Endocrinology, 806
Grollman, A., Essentials of Endocrinology, 1072
Guarantee of Annual Wages, 1072
Guiang, R. V., Building Up a Successful Medical Practice, 589
Guillaume J., Diagnostic neuro-chirurgical, 509
Gymnastics, Anatomy and Physiology for Students of, 356
Gynecology, Lehrbuch der gynäkologischen Diagnostik, 589
  Pediatric, 588
Haldane, J. B. S., Science Advances, 729
Hallux valgus, 509
Hamilton-Paterson, J. L., Penicillin in General Practice, 431
Hand, Master Hand: Origin and Meaning of Right and Left Sidedness, its Relation to Personality and Language, 954
Hansen, H. F., Professional Relationships of the Nurse, 287
Hawaii, Health Story in, 589
Headache, 1007
Health: See also Hygiene
  Guide to Health Organization in U
  507
  Public and Heal in
  Cen 729
  pub t Advan
  S wall, 58
  You unity:

BOOK NOTICES—Continued

- Hearing, Train Your Hearing: Lessons for Home Practice, 287
- Heart: See also Cardiovascular Disease
  - Cardiopatologia, 287
  - Der Myokardinfarkt, 1008
  - Digitalis and Other Cardiotonic Drugs, 954
  - Electrocardiografia clinica con estudio de derivaciones unipolares, 1007
  - Lezioni di clinica medica, 1072
- Hematology: See Blood
- Hemmeler, G., Précis de diagnostic hématologique, 213
- Hess, W. R., Vegetative Funktionen und Zwischenhirn, 587
- Histopathology of Ear, Nose and Throat, 357
- Hobday's Surgical Diseases of Dog and Cat, 1071
- Hochrein, M., Der Myokardinfarkt, 1008
- Hodgkin's Disease and Allied Disorders, 655
- Hollingsworth, H.; Medical Care and Costs in Relation to Family Income, 69
- Holzer, W., Physikalische Medizin in Diagnostik und Therapie, 213
- Hospital and Public Health Resources in New Jersey: Source Book, 1072
  - Formulary, University Hospital, Ann Arbor, Mich., 805
- How Our Minds Work, 953
- Hygiene: See also Health
  - Personal, Introduction to, 728
- Industry, Adjustment to Physical Handicap and Illness, 508
  - Guarantee of Annual Wages, 1072
- Infants: See also Children; Pediatrics
  - Newborn, Textbook on Pathology of, 356
  - Nutrition, Textbook of Infant Feeding, 906
  - Premature Baby, 806
- Insurance, sickness, Private Enterprise or Government in Medicine, 905
- Internal Disease, Dermatologic Clues to, 143
  - Skin Manifestations of Internal Disorders, (Dermadromes), 69
- Internal Medicine, Advances in, 729
- Israel, S. L., Diagnosis and Treatment of Menstrual Disorders and Sterility, 587
- Jackson, H., Jr., Hodgkin's Disease and Allied Disorders, 655
- Jacobs, A. L., translator, Pulmonary Tuberculosis and its Treatment, 430
- Jamieson, E. B., Illustrations of Anatomy for Nurses, 656
- Jamison, S., Solutions and Dosage, 806
- Jamra, M. A., Contribuicao para o estudo hematológico e clinico da anemia perniciosa (moléstia de Addison-Biermer), 1007
- Jeans, P. C., Infant Nutrition, 906
- Jellinek, S., Dying, Apparent-Death and Resuscitation, 807
- oad, C. E. M., How Our Minds Work, 953
- ones, F. W., Buchanan's Manual of Anatomy, 587
- Jones, W. H. S., Medical Writings of Anonymus Londinensis, 807
- Jones, W. N., Jr., Inorganic Chemistry, 357
- Kaplan, A. D. H., Guarantee of Annual Wages, 1072
- Keiner, S. S., Doctor, Don't Let Me Die! 431
- Khoury, C., Hallux valgus, 509
- Kinsey, A. C., Sexual Behavior in Human Male, 430
- Klages, Ludwig, Die Bedeutung der Seelenkunde von Klages, 430
- Klem, M. C., Medical Care and Costs in Relation to Family Income, 69
- Klyne, W., Practical Chemistry for Medical Students, 357
- Kolmer, J. A., Penicillin Therapy Including Streptomycin, Tyrothricin and other Antibiotic Therapy, 589
- Kuever, R. A., Pharmaceutical Laboratory Manual, 1072
- Labor: See Obstetrics
- Laboratory Manual, Pharmaceutical, 1072
- Language, Master Hand: Study of the Origin and Meaning of Right and Left Sidedness and its Relation to, 954
- Lauffer, M. A., Viruses, 1116
- Le Breton, R., Le pouvoir antiprotéolytique du sérum sanguin chez la femme, 805
- Lectureship, Hideyo Noguchi: Charles-Edouard Brown-Sequard, 357
- Leriche, R., Die Chirurgie im Einklang mit dem Leben, 588
- Le Vay, A. D., Synopsis of Orthopaedic Surgery, 727
- Lomholt, S., Venereal Diseases in General Practice, 656
- Lo Monaco Croce, T., Elementi di fisiologia e patologia dell'uomo in volo, 509
- McCarrison, R., Studies in Deficiency Disease, 431
- McCormick, C. O., Textbook on Pathology of Labor, Puerperium and Newborn, 356
- McCunn, J., editor, Hobday's Surgical Diseases of Dog and Cat, 1071
- McGregor, A. L., Synopsis of Surgical Anatomy, 1071
- McLachlan, A. E. W., Handbook of Diagnosis and Treatment of Venereal Diseases, 848
- Markwick, E., Office Manual for Medical Secretary, 905
- Marriott, W. M., Infant Nutrition, 906
- Massage and Remedial Exercises in Medical and Surgical Conditions, 1008
- Master Hand, 954
- Maternal Health, National Committee on, Proceedings of Conference on Fertility, 655
- Mazer, C., Diagnosis and Treatment of Menstrual Disorders and Sterility, 587
- Mayes, B. T., Practical Obstetrics, 1116
- May's Manual of Diseases of Eye, 905
- Meals for Millions. Final Report of New York State Joint Legislative Committee on Nutrition, 1947, 356
- Medical Addenda: Related Essays on Medicine and the Changing Order, 906
- Medical Care and Costs in Relation to Family Income, 69
- Medical History, Century of Service, Rochester General Hospital, 1847-1947, 805
  - Entwicklungs-Geschichte des Krankheitsbegriffes, 357
  - Medical Writings of Anonymus Londinensis, 807
- Medical Practice, Building Up a Successful Medical Practice, 589
- Medical Secretary, Office Manual for, 905
- Medicine: See also Medical History; Physicians; Surgery; etc.
  - Die Bedeutung der Seelenkunde von Klages für Biologie und Medizin, 430
  - in Changing Order: Report of New York Academy, 509
  - Principles and Practice of Medicine, 142
  - Private Enterprise or Government in, 905
  - Textbook of, 142
- Menstruation, Diagnosis and Treatment of Menstrual Disorders, 587
- Merchant, I. A., Veterinary Bacteriology, 69
- Michelazzi, A. M., Cardiopatologia, 287
- Midwifery: See Obstetrics
- Milk and Food Sanitation Practice, 287
- Miller, J. J., Your Teeth: and How to Keep Them, 954
- Mind, Adventures of the Mind, 906
  - How Our Minds Work, 953
- Minder, J., Lehrbuch der Urologie, 508
- Mobley, H. E., Synopsis of Operative Surgery, 1072
- Moench, L. G., Headache, 1007
- Molding and Casting for Moulage Workers, etc., 143
- Moorman, L. J., American Sanatorium Association: Brief Historical Sketch, 953
- Mountin, J. W., Guide to Health Organization in United States, 507
- Movitt, E. R., Digitalis and Other Cardiotonic Drugs, 954
- Mullett, C. F., Public Baths and Health in England, 16th-18th Century, 729
- Mycology, Fungi, 142
- Myocardium infarction, Der Myokardinfarkt, 1008
- National Committee on Maternal Health, Proceedings of Conference on Fertility, 655
- National Tuberculosis Association, American Sanatorium Association: Brief Historical Sketch, 953
- Nervous System, Diseases of, 806
- Neurology, Charles-Edouard Brown-Sequard, Nineteenth Century Neurologist and Endocrinologist, 357
  - Diseases of Nervous System, 357
  - Lehrbuch der Nervenkrankheiten in 30 Vorlesungen, 431
  - Neuropathology in its Clinicopathologic Aspects, 1071
  - Vegetative Funktionen und Zwischenhirn, 587
- Neuropsychiatry, Synopsis of, 727
- Neurosurgery, Diagnostic neuro-chirurgical, 509
- Neuweiler, W., Lehrbuch der gynäkologischen Diagnostik, 589
- New Jersey, Hospital and Public Health Resources in: Source Book, 1072
- New York Academy of Medicine Medical Addenda: Related Essays on Medicine and the Changing Order, 906
  - Academy of Medicine, Medicine in Changing Order, 509
  - State Joint Legislative Comitee on Nutrition, Meals for Millions, 356
- Nicholls, L., Tropical Nutrition and Dietetics, 1071
- Nielsen, J. M., Engrammes of Psychiatry, 655
- Noguchi Lecture: Charles-Edouard Brown-Sequard, 357
- Nose: See Otorhinolaryngology
- Nurses, De Lee's Obstetrics for, 729
  - Illustration of Anatomy for, 656
  - Professional Relationships of, 287
- Nursing, Counseling in Schools of, 143
- Nutrition: See also Diet; Food
  - Infant, 906
  - Meals for Millions, 356
  - Tropical, 1071
- Obstetrics, DeLee's, for Nurses, 729
  - Practical, 1116
  - Textbook on Pathology of Labor, 356
- Occupational Therapy, Anatomy and Physiology for Students of, 356
- Office Endocrinology, 806
  - Manual for Medical Secretary, 905
  - Treatment of the Eye, 953
- Oldham, F. K., Essentials of Pharmacology, 805
- Olmsted, J. M. D., Charles-Edouard Brown-Sequard, 357
- Ophthalmology, Alterations de la retine en rapport avec les affections generales, 589
  - Aspects pathologiques du fond de l'oeil dans les affections de la retine, 728
  - Das Auge als Subjekt: Das Wahrnehmungsbild und seine Prüfung, 589
  - Diseases of Children's Eyes, 587
  - May's Manual of Diseases of Eye, 905
  - Office Treatment of the Eye, 953
  - Principles of Contact Lens, 1116
  - Reading and Visual Fatigue, 953
  - Researches on Normal and Defective Colour Vision, 588
  - Sensory Mechanisms of Retina with Appendix on Electroretinography, 430
  - Treatise on Gonioscope, 431
- Oral: See Dentistry
- Orthopedics: See also Fractures
  - Synopsis of Orthopaedic Surgery, 727
- Osol, A., Dispensatory of United States of America, 805
- Ostergaard, E., Antigonadotrophic Substances, 906
- Otorhinolaryngology, Ear, Nose and Throat: Symptoms, Diagnosis, Treatment, 727
  - Histopathology of Ear, Nose and Throat, 357
  - Intracranial Complications of Ear, Nose and Throat Infections, 507
- Overcoming Stammering, 954
- Papyrus, Medical Writings of Anonymus Londinensis, 807
- Paralysis, Cerebral Palsied Child and His Care in the Home, 848
- Parents, Stop Annoying Your Children, 142
- Parry-Price, H., Short Handbook of Practical Anesthetics, 728
- Pathology: See also Histopathology
  - Surgical, 1072
  - Textbook of Pathology of Labor, Puerperium and Newborn, 356
- Pediatrics: See also Children; Infants
  - Advances in, Volume II, 729
  - Gynecology, 588
  - Premature Baby, 806
- Pellman, C., Overcoming Stammering, 954
- Pelner, L., Gastroenterology in General Practice, 953
- Penicillin in General Practice, 431
  - Therapy Including Streptomycin, Tyrothricin and other Antibiotic Therapy, 589
- Perera, C. A., editor, May's Manual of Diseases of Eye, 905
- Pericarditis, La pathogénie des altérations électrocardiographiques de la péricardite, 1007
- Personality, Master Hand: Right and Left Sidedness and its Relation to, 954
- Pharmacology, Essentials of, 805
  - Pharmaceutical Arithmetic, 906
  - Pharmaceutical Laboratory Manual, 1072
  - Practical Difficulties in Pharmaceutical Preparations, 805
- Physical Fitness, Appraisal and Guidance, 905
- Physical Medicine in General Practice, 848
  - Physikalische Medizin in Diagnostik und Therapie, 213
- Physicians: See also Medicine; Surgery; etc.
  - biography, Die Chirurgie im Einklang mit dem Leben, 588
  - Building Up a Successful Medical Practice, 589
  - Doctor, Don't Let Me Die! 431
  - Studies in Genius, 953
- Physics, Elementary Medical, 142
- Physiology: See also Anatomy
  - For Students of Physiotherapy, Occupational Therapy and Gymnastics, 356
  - of Man in the Desert, 1008
- Physiotherapy, Anatomy and Physiology for Students of, 356
- Poetry, Diagnosis of Acute Abdomen in Rhyme, 905
- Potassium, Importancia biológica del potasio, 848
- Pregnancy, Walk with a Separate Pride, 953
- Premature Baby, 806
- Private Enterprise or Government in Medicine, 905
  - he Nurse, 287
  - in Surgery, 431
  - a psycho-physiologie, 729
  - Engrammes of, 655
  - Fundamentals of, 1008
  - Practical Clinical, 1071
  - Psychiatric Research, 729
- Psychoanalysis, Deep Analysis: Clinical Study of an Individual Case, 1008
  - Sinn und Gehalt der sexuellen Perversionen, 507
- Psychology, Chronic Disease and Psychological Invalidism: Psychosomatic Study, 509
  - How Our Minds Work, 953
  - social, of Physique and Disability Survey, 508
- Psychosomatic Study: Chronic Disease and Psychological Invalidism, 509
- Public Baths and Health in England, 16th-18th Century, 729
- Public Health: See Health
- Public Welfare Directory, 1947, 509
- Puerperium, Textbook on Pathology of, 356
- Reading and Visual Fatigue, 953
- Recipes, International, Simplified Diabetic Manual with, 848

BOOK NOTICES—Continued
Renard, G., Aspects pathologiques du fond de l'oeil dans les affections de la retine, 728
Research, Psychiatric, 729
Respiration, Influence of Positive Pressure Breathing on Circulation, 509
Resuscitation, Dying, Apparent-Death and Resuscitation, 807
Reticuloendothelial System, La réticulose histiomonocytaire, 508
Retina, Alterations de la retine en rapport avec les affections generales, 589
  Aspects pathologiques du fond de l'oeil dans les affections de la retine, 728
  Sensory Mechanisms of, with Appendix on Electroretinography, 430
Rochester Desert Unit, Physiology of Man in the Desert, 1008
  General Hospital, Century of Service, 1847-1947, 805
Roentgenology, Atlas of Cardiovascular Disease, 143
  Practical X-Ray Treatment, 287
Rössler, F., Das Auge als Subjekt: Das Wahrnehmungsbild und seine Prüfung, 589
Roxburgh, A. C., Common Skin Diseases, 727
Rudy, A., Simplified Diabetic Manual with 163 International Recipes, 818
Ruesch, J., *Chronic Disease and Psychological Invalidism: Psychosomatic Study*, 509
Sanatorium, American Sanatorium Association: Brief Historical Sketch, 953
Schauffler, G. C., Pediatric Gynecology, 588
Scheinker, I. M., Neuropathology in Its Clinicopathologic Aspects, 1071
Schwarz, F., Probleme des Selbstmordes, 729
Science Advances, 729
Science Digest Reader, 953
Sea, Ships Medicine Chest and First Aid at Sea, 728
Secretary, Medical, Office Manual for, 905
Sellinger, E., *Office Treatment of the Eye*, 953
Selling, L. S., Synopsis of Neuropsychiatry, 727
Sex: See also Fertility; Sterility
  Hormones, Biological Actions of, 806
  Perversion, Sinn und Gehalt der sexuellen Perversionen, 507
  Sexual Behavior in Human Male, 130
Ship's Medicine Chest and First Aid at Sea, 728
Short, A. R., Causation of Appendicitis, 287
Signorelli, S., *L'infezione brucellare nell'uomo*, 69
Skin: See Dermatology
Smith, V. J., Century of Service, Rochester General Hospital, 1847-1947, 805
Smout, C. F. V., Anatomy and Physiology for Students of Physiotherapy, Occupational Therapy and Gymnastics, 356
Social changes, Medicine in the Changing Order, New York Academy report, 509; 906
  Psychology of Physique and Disability Survey: Adjustment to Physical Handicap and Illness, 508
  Science Research Council, Adjustment to Physical Handicap and Illness, 508
Solutions and Dosage, 806
Speech, Overcoming Stammering, 954
Stammering, Overcoming, 954
Stearns, H. O., Elementary Medical Physics, 142
Steincrohn, P. J., What You Can Do for High Blood Pressure, 1071
Sterility, Diagnosis and Treatment of, 587
Stimson, P. M., Manual of Common Contagious Diseases, 431
Stop Annoying Your Children, 142
Strecker, E. A., Fundamentals of Psychiatry, 1008
  Practical Clinical Psychiatry, 1071
Streptomycin, Penicillin Therapy Including, 589
Suicide, Probleme des Selbstmordes, 729
Surgery, Diagnostic neuro-chirurgical, 509
  Die Chirurgie im Einklang mit dem Leben, 588
  Fluids, Electrolytes and Protein in Surgery, 431
  Hobday's Surgical Diseases of Dog and Cat, 1071
  Massage and Remedial Exercises in Surgical Conditions, 1008
  of Ambulatory Patient, 357
  Operative, Synopsis of, 1072
  Orthopedic, Synopsis of, 727
  Preoperative and Postoperative Care, 356
  Surgical Pathology, 1072
  Synopsis of Surgical Anatomy, 1071
Teeth: See Dentistry
Therapeutics, Cornell Conferences on Therapy, 805
  Practical X-Ray Treatment, 287
  Solutions and Dosage, 806
Throat: See Otorhinolaryngology
Tidy, N. M., Massage and Remedial Exercises in Medical and Surgical Conditions, 1008
Tourish, W. J., Preoperative and Postoperative Care, 356
Train Your Hearing: Lessons for Home Practice, 287
Treatment: See Therapeutics
Treiger, I. J., *Atlas of Cardiovascular Diseases*, 142
Treissman, H., Principles of Contact Lens, 1116
Troncoso, M. U., Treatise on Gonioscopy, 431
Tropical Disease, Memoranda on Medical Diseases in Tropical and Sub-Tropical Areas, 587
  Nutrition and Dietetics, 1071
Tuberculosis, American Sanatorium Association: Brief Historical Sketch, 953
  Pulmonary Tuberculosis and Its Treatment, 130
Tumors, Endocrinology of Neoplastic Disease, 69
Twentieth Century Fund, America's Needs and Resources, 1071
Twombly, G. H., editor, Endocrinology of Neoplastic Diseases, 69
Tyrothricin, Penicillin Therapy Including, 589
Undulant Fever: See Brucellosis
University of Illinois, Physical Fitness, Appraisal and Guidance, 905
  of Michigan, Formulary, University Hospital, Ann Arbor, Mich., 805
Urethra, Endoskopie der Harnröhre: Diagnostik und Therapie, 589
Urology, Lehrbuch der Urologie, 508
Ustvedt, H. J., Pulmonary Tuberculosis and Its Treatment, 130
Uterus, Entstehung und Früherfassung des Portiokarzinoms, 656
Varicose Veins of Lower Extremity, 589
Venable, C. S., Internal Fixation of Fractures, 728
Venereal Diseases, Handbook of Diagnosis and Treatment of, 848
  in General Practice, 656
Veterinary Bacteriology, 69
Viruses, 1116
Vision: See Ophthalmology
Walk with a Separate Pride, 953
Walshe, F. M R., Diseases of Nervous System, 806
Werkö, L., Influence of Positive Pressure Breathing on Circulation in Man, 509
Wespi, H., Entstehung und Früherfassung der *Portiokarzinoms*, 656
What You Can Do for High Blood Pressure, 1071
Whitehurst, M. W., Train Your Hearing: Lessons for Home Practice, 287
Wiener, K., Skin Manifestations of Internal Disorders (Dermadromes), 69
Wolf, F. A., Fungi, 142
Wolf, G. D., Ear, Nose and Throat: Symptoms, *Diagnosis, Treatment*, 727
Wright, W. D., Researches on Normal and Defective Colour Vision, 588
Your Community: Its Provision for Health, Education, Safety, and Welfare, 287
Your Teeth: And How to Keep Them, 954
Zeta, Diagnosis of Acute Abdomen in Rhyme, 905

C

CACODYLATE-strychnine preparation in chronic brucellosis, [Griggs] ★911
CADAVER: See Autopsies
CAIRNS, Sir HUGH, *traveling professor of* surgery, 571
CALCIFEROL: See Vitamin D_2
CALCIFICATION: See also Brain
  metastatic, of sclera after vitamin D, [Frost] 1003—ab
CALCIUM cyanide, poisoning, (reply) [Hamblin] 1074
  in Blood: See Blood
  Penicillin: See Penicillin
  sulfate formed from combining calcium penicillin and streptomycin sulfate, (replies) [Coghill; Rieveschl] 956
CALCULI: See under organs affected as Salivary Glands
CALDWELL, JOHN M., personal, 783
CALIFORNIA: See also San Francisco
  California Medicine not member of Cooperative Medical Advertising Bureau, 399; 400—E
  Dri-Aire Lamp not acceptable, 691
CALORIES, restriction and skeletal growth [Handler] 1114—ab
  value of protein hydrolysate preparations [Cherkin] 795—C
CAMPBELL, JOSEPH L., personal, 564
CANADIAN Medical Association, presentation *and address of Dr. Routley*, 267
  physicians, 4 introduced at Cleveland Interim session, 267
CANCER: See also Adenocarcinoma; under name of organ or region affected; Medicolegal Abstracts at end of letter M
  American Cancer Society—A. M. A. series of articles on cancer [Brunschwig] ★28; [Naffziger & Boldrey] ★96; [Miller] *★163*; [Craver] ★244; *[Daland]* ★391; [Dargeon] ★459; [Phemister] ★545; [Michelson] ★683
  American Cancer Society, (grants since Sept.) 566; (fund raising campaign) 833, 880—E; 988—OS; (establishes 20 annual fellowships) 881—E
  basal cell carcinomas; likelihood of recurrence remote, 216
  blood pattern in, [Haden] 310—ab
  clinic, diagnostic in Waukegan, Ill., 48
  clinic, state (18th), Ill., 565
  conference, Conn., 338

CANCER—Continued
  control, American Cancer Society fund-raising campaign, 833—OS; 880—E; 988—OS
  control, cancer day program, Mich., 786
  control, detection center, (Ore.) 482; (clinic, *Tex.)* 786; *(Minn.) 838; (sponsored by* American Cancer Society) 880—E; (3rd, Chicago) 910; (full time, Hot Springs, Ark.) 1051
  control, health bulletin on, N. Y., 704
  control, National Advisory Cancer Council grants, 193
  control, symposium in Milwaukee, 942
  control, U. of Arkansas fund campaign, Ark., 702
  Detection: See Cancer control
  Diagnosis: See also Concer control
  diagnosis, cytologic: smear, scraping method, *biopsy*, [Ayre] ★513
  etiology, ultraviolet radiation; use of sunlamps, [Coblentz] ★1040
  hormones in relation to, [Thompson] ★318
  hospital, M. D. Anderson Hospital for Cancer Research, appoint director, 1057
  in children: liver, bile ducts and pancreas, [Brunschwig] ★28
  in children, cervical cancer in young girls, *[Speert] 797—ab*
  in children from birth to 14, [Dargeon] ★459
  inoperable, relief of pain, 145
  International Cancer Research Foundation renamed Donner Foundation 2 years ago, 567
  lecture, New Mexico, 272
  metastases from mouth to cervical lymph nodes [Weyde] 504—ab
  National Advisory Cancer Council, 193; *479; 1054*
  National Cancer Institute, (Dr. Heller heads) 1102—OS
  Nye memorial study at Massachusetts General, 941
  precancerous lesions, [Michelson] ★684
  Prevention: See Cancer control
  prize, Cleveland (Clement) Award, 993
  prize, Hinshaw (W. W.), for research an*nounced, 883—OS*
  refresher courses, Chicago, 480
  research at Columbia, 273
  research, Atomic Energy Commission to support, 836
  research center, U. S. government approves plans for, 477—OS
  research, Damon Runyon Cancer Research Fund, 1057
  research, England, 127
  research facilities, National Advisory Cancer Council, 1054
  research grants by Mr. and Mrs. Charles H. Worcester, 48
  research grants to U. of Chicago, 940
  Research Group program, Wis., 195
  research hospital in Bethesda to include beds for patients, 270—OS
  research institute and cancer control society, Turkey, 488
  research, Massachusetts General Hospital granted funds for, 785
  research, Sloan-Kettering Institute for Cancer Research opened, 993
  squamous cell, of urinary tract, [Patch] ★824
  treatment, home care to continue, N. Y. C., 993
  treatment, palliative, in advanced cancer, [Daland] ★391
  treatment, recent advances, [Rhoads] ★305
  treatment, relieve pain with caudal anesthesia, 792
  treatment, trypanosome vaccine (KR) 591
  treatment, urethane, no improvement noted in, [Hirschboeck & others] ★93
  viruses in relation to, [Spencer] 1093—ab
CANITIES: See Hair, *gray*
CANNED Products for Infants: See Infants, feeding
CAPILLARIES, fragility and retinal hemorrhage, [Shanno] 948—ab
  fragility, rutin for in hypertension, [Griffith] 284—ab
  thrombocytic acroangiothrombosis, [Fitzgerald] 499—ab
CARBOHYDRATES: See also Honey; Molasses; Sugar
  metabolism, midbrain-pituitary regulation, 841
  metabolism, role of acetic acid in, 771—E
  utilized by brain, [Lewis] ★868
CARBON MONOXIDE, *determinations in blood*, [Harders] 725—ab
  poisoning, [Corkill] (correction) 788
  poisoning, sudden death in a well not due to, 732
CARBON *TETRACHLORIDE* poisoning, fatal renal disease in, [Stobbe] 721—ab
  poisoning, thymol turbidity test in, 1061
CARBONATED Beverages: See Beverage
CARBUNCLES: See Furunculosis
CARCINOMA: See Cancer
CARDIAC: See Heart
  Muscle: See Myocardium
  Neurosis: See Asthenia, neurocirculatory
CARDIOVASCULAR DISEASE*: See also Heart* disease
  Functional: See Asthenia, neurocirculatory
  Hypertensive: See Blood Pressure, High

CARDIOVASCULAR DISEASE—Continued
  syphilis, penicillin for, ★877
  treatment, drug, in degenerative disease, [Ivy] ★909
  treatment, recent advances, [Barnes] ★299
CARDIOVASCULAR SYSTEM: See also Arteries; Blood Vessels; Capillaries; Heart; Veins
  circulatory system, 1028—ab
  effector organ in psychosomatic phenomena, [Burch & Ray] ★1011
CARIES: See Teeth
CAROLI, biliary radiomanometry, 945
CAROLINE ISLANDS, encephalitis in, 990
CARONAMIDE, (Council report) 251
  plus penicillin in bacterial endocarditis, [Boger] 844—ab
CAROTD SINUS, innervation, 1039—ab
CARRIERS: See Disease Carriers (cross reference)
CARROT, nutritive value, [Maynard & Nelson] ★1046
CARS: See Automobiles
CARTILAGE, patellar, chrondromalacia, [Bronitsky] 500—ab
CASE Finding: See Tuberculosis
  Records: See Medical Record Librarians
CASEIN, acid-hydrolyzed, [Elvehjem] ★917
  hydrolysate, protolysate (powder) N.N.R. (Mead Johnson) 933
  hydrolysate use in surgical patients, [Stewart & others] ★1017
  superior to lactalbumin in nutritive value, 558—E
CASTRATION: See also Eunuchoidism; Testis excision
  in women after mastectomy for cancer, 432
CASUALTIES: See Accidents
CAT: See Cats
CATARACT age determination, 214
  bilateral congenital, 809
  treatment, thyroxin, 956
CATS, poliomyelitis virus in, [Francis & others] ★1091
CAUDAL Anesthesia: See Anesthesia
CAUSALGIA, etiology, minor industrial injury, [Pernworth] 952—ab
  Madrid symptomatic complex, [Peraita] 68—ab
  treatment, sympathetic block interruption, [Shumacker] 902—ab
CAUTERIZATION, radical, of nostrils, in hay fever (reply) [Kaufman] 592
'AVAL Veins: See Vena Cava
'AVITATION: See Tuberculosis of Lung cavities
'ECUM, cancer pregnancy after, 510
'ELLS: See also Blood cells; Tissues
  allergy to drugs and bacteria, [Lowell] ★665
  inclusion bodies in organs of infants, [Cappell] 724—ab
  "trait", use for transfusion in sickle cell anemia [Singer & Robin] ★1025 (addendum)
'ELLULOSE in diet of ulcer patients, [Pezold] 585—ab
  oxidized, N.N.R., (description) 829; (Johnson & Johnson) 829
'ENSORSHIP on medical publication under National Health Service Act, England, 571
CENTIMETER waves, [Horvath] ★607
CENTRAL Surgical Association papers to be published in *Archives of Surgery*, 881—E
CEPHALALGIA, unilateral intractable, procaine injection, ligate or resect temporal and meningeal arteries, [Haynes] ★538
CEREAL PRODUCTS See also Rice; Wheat
  allergens of mill dust, [Jimenez-Diaz] 949—ab
  nutritive value, [Maynard & Nelson] ★1043
CEREBELLO-PONTILE angle tumor, [Naffziger & Boldrey] ★100
CEREBROSPINAL FLUID, lymphocytes in, treatment of latent congenital syphilis, 215
  concentration of sulfamerazine, 1009
CEREBROSPINAL MENINGITIS: See Meningitis, cerebrospinal epidemic
CEREBROSPINAL SYPHILIS: See Neurosyphilis
CEREBRUM: See Brain
CERTIFICATION of death, 987—E
CERVICITIS; CERVIX uteri: See Uterus
CESAREAN SECTION, when is sexual sterilization indicated? 955
CHAFFEE, ELMER F., appointment to medical service corps, 631
CHAGAS' Disease: See Trypanosomiasis
CHAULMOOGRA OIL treatment of leprosy, 830—E
  treatment plus streptomycin of urinary tuberculosis, [Slotkin] 846—ab
CHEESE, epidemics traced to, 828—ab
  foods for emergencies, [Wilder & Keys] ★326
CHEILITIS: See Lips
CHEMISTRY, A. M. A. Council on: See American Medical Association
  contemporary neurochemistry, [Lewis] ★866
CHEMOTHERAPY: See also under names of specific substances
  of gas gangrene, [Altemeier] 798—ab
  of leprosy, [Faget & Erickson] ★451
  of multiple sclerosis, 730
CHEST: See Thorax
CHICAGO Session: See American Medical Association
  University of: See University
CHICKENPOX, Kaposi's varicelliform eruption, [Ruchman] 716—ab
CHICKENS, poliomyelitis virus in, [Francis & others] ★1090
CHILBLAINS, treatment, calciferol, [Anning] 653—ab
  treatment, vitamin K, [Wheatley] 426—ab
CHILDBIRTH: See Labor
CHILDREN: See also Families; Infants; Maternity; Paternity; Pediatrics; under names of specific diseases as Cancer
  Adolescent: See Adolescence
  American Overseas Aid-United Nations Appeal for, 274
  behavior disorders after encephalitis, [Greenebaum & Lurie] ★923
  behavior disorders in first 2 years of life, [Spock] ★811
  care, 10-point national health program of A. M. A., 262
  Children's Clinic meeting, Mich., 993
  gray hair in, 1009
  Growth of: See Growth
  guidance center opens, Pa., 195
  guidance, fellowships in child guidance clinic psychiatry, 788
  health checkup of group of well children, Chicago, [Hardy] ★20
  health improved despite war shortages, London, 571
  health problems of rural child, [Hill] 773—OS
  health services study, [Bain; Poncher] 774—OS
  hearing aids for, by New York League for Hard of Hearing, 49
  Institute of Child Psychiatry, Conn., 785
  orthopedic defects, conference, 340
  school, Health Appraisal of, Joint Committee report, 689—OS; 780—OS
  teaching children to speak 2 languages at once, 1074
  welfare, Turkish Child Welfare Society, 794
  well child supervision,, course in, 940
CHINA honors missionary doctor: Dr. Lee S. Huizenga, 413
  U. S. Army medical library acquires "Great Herbal" from, 783
CHINIOFON, N.N.R., (Endo) 985
CHLORGUANIDE hydrochloride, (Council report) 251
CHLORIDES: See Potassium chloride; Sodium chloride
CHLORINE accident in Brooklyn, [Chasis] 900—ab
CHLOROBUTANOL, solution estrogenic substances in oil with, N.N.R., (Breon) 1019
*di*CHLORO-DIPHENYL - TRICHLOROETHANE : See DDT
CHLOROETHYLAMINES: See Nitrogen Mustards
CHLOROFORM poisoning, thymol turbidity test in, 1061
CHLOROMYCETIN, U. S. Army to test new drug against scrub typhus in Malaya, 409
CHLOROPHENYL isopropyl biguanide hydrochloride (Council report), 251
CHLOROPHYLL for dermatoses, [Langley] 65—ab
CHLOROQUINE Diphosphate, N.N.R., (description) 1049; (Winthrop) 1049
CHOLECYSTECTOMY: See Gallbladder
CHOLECYSTOKINASE, hormone metabolism in target organs, [Luckhardt] (correction) 50
CHOLERA in Egypt, 196; 345; 586—ab
  in Egypt, DDT dusting during, 990
  in Syria and Lebanon, 121; 195
CHOLESTEATOMA of nervous system, [Naffziger & Boldrey] ★101
CHOLINE: See Acetylcholine
CHONDROMALACIA patellae, [Bronitsky] 500—ab
CHORIOMENINGITIS, diagnosis, serologic tests, [Smadel] ★1080
CHORIONIC Gonadotropins: See Gonadotropins
CHRISTENSEN Heat Cradle, 175
CHROME surgical gut sheath to control hemorrhage, [Jenkins] 798—ab
CHRONICALLY Ill: See Disease
CICATRIX, correction of scar contractures of hand, [Greeley] 496—ab
  etiology of apical scars, 110—E
CINEMA: See Moving Pictures
CIRCULATION: See Blood circulation
CIRCULATORY SYSTEM: See Cardiovascular System
CIRRHOSIS: See Liver
CITATIONS, Military: See World War II, Heroes
CLAMP, Cunningham, better than urinal in urine incontinence, 1118
CLAVICLE, fracture, scalenus anticus syndrome, 849
CLAY-ADAMS Co., Inc., Papanicolaou test for uterine cancer (reply) 331—E; [Davidson] 711—C
CLERGYMEN: See Religion
CLEVELAND Cancer Award: See Prizes
  Interim Session: See American Medical Association
CLIMACTERIC: See Menopause
CLIMATE: See also Seasons; Tropics
  blood count and, 290
CLIMATIC Bubo: See Lymphogranuloma, Venereal
CLINICS: See also Cancer clinic; Heart; Industrial Health; Ophthalmology
  for practicing physicians, Philadelphia, 566
  Kate Depew Strang Prevention Clinic to serve all age groups, N. Y. C., 703
CLOSTRIDIUM welchi Infection: See Gangrene, gas
CLOTHING, A. M. A. 10-point national health program, 261
  dermatitis patch testing; Army rain coats, 850
CLOTTING: See Blood coagulation
CLOVER, Spoiled Sweet, Preparation from: See Dicumarol
COAGULATION; COAGULANTS: See Blood coagulation
COBB, STANLEY, on development and progress of neurosurgery, 1050—E
COCCIDIOIDOMYCOSIS in New England, [Kurz] 283—ab
COCKE Fellowship: See Fellowships
CODE of Ethics: See Ethics, Medical
COD LIVER OIL, bacteriostatic and bactericidal effect [Solomides] 355—ab
CODMAN, EMORY A., tumor registries, 1063
COGGESHALL, LOWELL T., appointed to Board of Civilian Consultants, 563
COITUS: See also Contraception; Impotence; Impregnation; Libido; Rape; Reproduction; Spermatozoa
  dyspareunia, causes; tube treatment, [Frank] ★361
COLD: See also Refrigeration
  test soldiers' reactions to, 631
COLDS: See also Cough; Hay Fever; Throat, sore; Tonsils, infected
  prevention, impregnate handkerchiefs with disinfectant, 641
  prevention, no preventive, [Rivers] 292—ab
  research, London, 277; 641
  treatment, antibiotics, [Rivers] 292—ab; [Keefer] 321—ab
  treatment, benadryl, [Brewster] 65—ab
  virus infections, [Dingle] ★1084
COLDSORE: See Herpes simplex
COLITIS, Balantidial: See Balantidiasis
  ulcerative chronic, antibiotics for, [Bockus] 297—ab
  ulcerative, extract of hog stomach in, [Ehrlich] 60—ab
  ulcerative, surgery in, [Best] 1003—ab
COLLAPSE: See Shock
  Pulmonary: See Lungs, collapse
  Therapy: See Pneumothorax, Artificial
COLLEGE: See University
  Degree: See Degrees
  Medical: See Schools, Medical
  of Physicians, Surgeons: See American College; list of Societies at end of letter S
  Students: See Students; Students, Medical
COLLINS, WARREN E., Inc., hydraulic lift for paralyzed patients, [Wesselhoeft] 56—C
COLOMBIAN epidemic, 1009
COLON: See also Cecum; Colitis
  megacolon (congenital), 1074
  surgery, [Bacon & Rowe] ★975
  surgery, one stage anastomosis, [Hinton] 1065—ab
COLUMBIA University, cancer research at) 273; (grant for research on problems of aging) 339; (gift to, for research on epilepsy) 412; (School of Tropical Medicine, Puerto Rico) [Irons] ★983
COMMENDATION for War Service: See World War II, Heroes
COMMISSION: See list of Societies and Other Organization at end of letter S
COMMISSIONS, Military: See Army, U. S.
  rebates and medical ethics, 176—E
COMMITTEE: See also National Committee; list of Societies at end of letter S
  for Research in Problems of Sex of National Research Council, 483
  of A. M. A.: See American Medical Association
  on Human Reproduction of National Research Council, 889
  on Medical and Hospital Services of Armed Forces tour of inspection, 631
  on Postwar Medical Service: See American Medical Association Joint Committee for Coordination of Medical Activities
COMMUNICABLE DISEASE: See also Epidemics; Infectious Disease
  report, Ill., 338
COMMUNITY Service Society centennial, 339
COMPENSATION: See Workmen's Compensation
  of Physicians: See Fees
CONCEPTION: See Impregnation; Pregnancy; Sterility
  Control of: See Contraception
CONDON, EDWARD U., criticism described as threat to research, 936—OS
CONDUCT: See Behavior; Ethics, Medical
CONDYLOMATA acuminata, podophyllin for, 360
CONFERENCE: See under list of Societies at end of letter S
  Annual: See American Medical Association, Annual Conference

CONFERENCE—Continued
  Regional, under auspices of A. M. A. Council on Medical Service: See A. M. A. Council on Medical Service
CONGRESS: See also International Congress, list of Societies at end of letter S
  Annual: See American Medical Association
  of French-Speaking Pediatricians, 12th, 841
  of French Surgery Association, 200
  of German Internists, May 19-21, 1106
  of Longevity, Paris, 841
  on Hygiene of Schools and Universities, Paris, 278
  U. S.: See United States
  U. S., Medical Bills in (weekly summary): See Laws and Legislation
CONJUNCTIVA, palpebral, mascara causing pigmentation, [Reese] 797—ab
CONJUNCTIVITIS, allergic warm season, 345
  diagnostic problem, 131
  eyelid of left eye stuck to cornea on awakening, 145
  infectious acute, in newborn, study use of penicillin to prevent blindness, 1102—OS
  Reiter's disease, [Khoury] 135—ab
CONSTITUTION: See Personality: Psychosomatic Medicine
CONSULTANTS, assist in new overseas program, 409
  reserve, U. S. Navy, 336; 410
CONSULTATION services for health departments, N. Y., 272
CONTACT Dermatitis: See Dermatitis venenata
  Lenses: See Glasses
CONTAGION: See Infection
CONTAGIOUS DISEASE: See *Infectious Disease*
CONTEST: See Prizes
CONTINENTALAIR Iceless Oxygen Tent with Automatic Temperature Control, 555
CONTRACEPTION, *birth control in Puerto Rico*, [Irons] *980
  masking sterility and infertility, [Rubin] 490—C
CONTRACTURE, Dupuytren's, and trophic nerves [Reichel] 286—ab
  scar, of hand, correction, [Greeley] 196—ab
CONVALESCENCE: See also Rehabilitation
  dangers of going to bed, [Asher] 802—ab
  early postoperative ambulation, [Balcer] 61—ab
CONVALESCENT SERUM: See Scarlet Fever: Serum
CONVICTS: See Prisoners
CONVULSIONS: See also Eclampsia; Epilepsy
  electric, electrocardiographic changes in, [Altschule] 1067—ab
  febrile, [Livingston] 380—ab
  hyperpyretic, [Neyroud] 429—ab
  hysterical, differentiating from epilepsy by pitressin hydration test, [Cappon] 67—ab 652—ab
  Therapeutic: See Electric shock
COOKING procedures and staphylococcus food poisoning, [Hussemann] 495—ab
COONEY-Crosby glass button operation for ascites, [Welch] 649—ab; [Lord] *767
COOPER Union Forum Lectures: See Lectures
COOPERATIVES, study by A. M. A., 188
COPROPORPHYRIN: See Porphyrins
CORAMINE: See Nikethamide
CORD: See Journals
CORN germ, foods for emergencies, [Wilder & Keys] *324
  nutritive value, [Maynard & Nelson] *1041
CORNEA: See also Keratoconjunctivitis
  changes during arsphenamine treatment, [van Doormaal] 429—ab
  eyelid of left eye stuck to, on awakening, 145
  Inflammation: See Keratitis
  transplantation, eye bank report, (N. Y.) 566; (Stanford) 1055
CORNELIAN Corner, 881—E
CORNELL Medical College Alumni Day, 482
CORONARY Arteries: See Arteries
mbosis
eart, hypertrophy
Desoxycorticosterone
diphtheriae: See Diphtheria bacillus
CORYZA: See Colds
COSMETICS, Federal Trade Commission surveys advertisements, 402—E
  lipstick cheilitis, [Zakon] 423—ab
  mascara causing pigmentation of palpebral conjunctiva, [Reese] 797—ab
COTTON fibers, foreign body granuloma, 770—E
  Gauze: See Gauze
COTTONSEED, *in what common foods and materials does this item occur?* 732
COUGH: See Colds; Sputum; Whooping Cough
COUMARIN: See Dicumarol
COUNCIL: See under specific names as National Research Council
  A. M. A.: See American Medical Association
COUNTY Health Dept.; Health Unit: See Health
  Society: See Societies, Medical; list of societies at end of letter S
COURSES: See Education, Medical
COURT Decision: See *Medical Jurisprudence*
COWS Milk: See Milk
  poliomyelitis virus in, [Francis & others] *1090
CRADLE, Christensen heat, 175
CRAMPS: See *Spasm*
  Menstrual: See Dysmenorrhea
CRANE Lecture: See Lectures
CRANIOPHARYNGIOMA, of pituitary, [Grant] *670
CRANIUM: See also *Brain; Head; Temporal* Bone
  fracture, traumatic epilepsy, 809
  premature closure of sutures, [Simmons] 581—ab
  surgery, tantalum cranioplasty, [*Lane*] *580*—ab
CREAM: See Cheese
CREATINE, detected in brain, [Lewis] *868
CREER, RALPH, to attend International Congress *of Leprosy*, *833—OS*
CRETINISM, differentiating from mongolian idiocy, 116
CRIME: See also Prisoners; Medicolegal Abstracts at end of letter M
  United Nations Crime Prevention Study, 788
CRIMINALS: See Prisoners
CRIPPLED. See also Physical Defects; Poliomyelitis
  children, annual report of Board of Health, *Hawaii*, 839
  hydraulic lift for patients with partial leg paralysis, [Wesselhoeft] 56—C
CROSBY-Cooney glass button operation for ascites, [Welch] 649—ab; [Lord] *767
CRYPTORCHIDISM: See *Testis*
CULTS: See Osteopathy
CUNNINGHAM clamp better than urinal in incontinence, 1118
CUPP, HORACE B., personal, 781
CUSHING'S SYNDROME in girl aged 20 months, [Weisse] 506—ab
CUTTER Lectures: See Lectures
CYANIDE poisoning, (reply) [Hamblin] 1071
CYANOGEN, (reply) [Hamblin] 1071
CYANOSIS as sign of arterial anoxemia, 41—E
CYCLOTRON, Germany, 839
  U. of Chicago orders magnet for, 785
CYST: See under name of organ or region affected
  Dermoid: See Dermoid cyst
  Pilonidal: See Pilonidal Sinus
CYSTITIS: See Bladder
CYTOLOGY: See Cells
CYTOMYCOSIS, Reticulo-endothelial: See *Histoplasmosis*

D

DDT, deah after accidental ingestion, [Smith] *469
  dusting during cholera epidemic, Egypt, 990
DA COSTA Syndrome: See Asthenia, neurocirculatory
DAIRY Products: See Casein; Cheese; Milk
DALLAS Health Museum receives public health award, 482
DANISH Red Cross: See Red Cross
DARLING'S Disease: See Histoplasmosis
DAVIS Lecture: See Lectures
DEAD BODY, Examination: See Autopsies
DEAFNESS: See also Hearing, impaired
  scholarship for training hard of hearing teacher, 413
  Treatment: See also Hearing aids
  treatment, use of radium in nasopharynx, [Jennings] 1068—ab
DEATH: See also Autopsies; Murder
  causes, registration of, 987—E
  from drowning, blood and heart in, 697—E
  how to put sick and injured pets out of their misery, 289
  of Fetus: See Fetus; Stillbirths
  of Infants: See Infants, mortality
  of Physicians: See Physicians, death; list of deaths at end of letter D
  Rate: See Vital Statistics
  reanimation by artificial circulation, [Schwiegk] 428—ab
  sudden, from injecting mercurial diuretic, [Oettle] 66—ab
  sudden, in a well; not due to carbon monoxide poisoning, 732
  sudden, in artificial pneumothorax, [Martinez de Salinas] 506—ab
DECHOLIN sodium to enhance mercurial diuresis, [DeGraff] *1026
DECUBITUS ulcers in paraplegics, [Kostrubala] 210—ab
DEERFLY Fever: See Tularemia
DEFECTIVES: See Mental Defectives
DEFECTS, Physical: See Crippled; Disability; Physical Defects
DEFICIENCY DISEASE: See Beriberi; Nutrition; Pellagra; Scurvy; Vitamins deficiencies
DEFINITION: See Terminology
DEFORMITIES: See Abnormalities; Crippled; Poliomyelitis
DEGENERATIVE DISEASE, drug therapy, [Ivy] *909
DEHYDRATION, comparative tests of *dehydrated and fresh food*, [*Deuel*] *424—ab*
  of food to save space in shipping, [Wilder & Keys] *326
DELIRIUM, treatment, penicillin in amentia, [Zanetti] 651—ab
DELIVERY: See *Labor*
DELVINAL Sodium, N.N.R., (Sharp & Dohme) 471
DEMENTIA PARALYTICA, treatment, penicillin, *878
DEMENTIA PRECOX, skin symptoms in, [Cornbleet & Brown] *152
  treatment, testosterone, of schizophrenia, 360
DEMEROL: See Meperidine
DENTAL Caries: See Teeth
DENTISTRY: See also *Teeth*
  dentists reject work under National Health Service Act, England, 1060
  Senator Taft opposes free dental care, 883—OS
  300 dentists now in Bavaria, 201
  Veterans Administration reserve to pay dentist for services to veterans, 886
DERMATITIS: See also Acarodermatitis; Eczema
  Actinica: See *Sunburn*
  Contact: See Dermatitis venenata
  exfoliative, 116
  exfoliative, after penicillin, [Derzavis] 1070—ab
  herpetiformis, sulfapyridine in, [*Costello*] 616—ab
  Industrial: See Industrial Dermatoses
  of external auditory canal, 810
  patch testing; question of Army raincoats, 850
  Poison Ivy; Poison Oak: See Rhus
  venenata, from streptomycin, [Strauss] 64—ab
  venenata from streptomycin in nursing *personnel*, [*Rauchwerger & others*] *614
DERMATOLOGY: See also Skin; under names of specific skin diseases
  Brayton Foundation for advancement of, Ind., 481
  manifestations in psychiatric disorders, [Cornbleet & Brown] *152
DERMATOSIS: See Industrial Dermatoses; Skin disease
DERMOID and epidermoid cysts, of nervous system, [*Naffziger & Boldrey*] *101
  cysts in children, [Dargeon] *468
DESERT Fever: See Coccidioidomycosis
DESOXYCORTICOSTERONE in infantile atrophy, [Forssell] 286—ab
DETROIT, leptospiral infections, survey, [Molner & others] *814
DEVICE for holding bedclothes away from patient's lower extremities, 625
DEWEY, RICHARD, his father was a blacksmith, 677—ab
DIABETES INSIPIDUS, diagnosis (differential), hypertonic saline infusions in, [Carter] 717—ab
  etiology, pinealomas, [Horrax] 645—ab
DIABETES MELLITUS: See also Medicolegal Abstracts at end of letter M
  acidosis, [Franks] 1066—ab
  acidosis, electrolyte changes in, [Martin] 493—ab
  American Diabetes Association publication of *ADA Forecast*, 274
  arteriosclerosis in youths, [Lesser] 643—C; [Ross] 895—C
  complications; tuberculosis in diabetic persons, 849
  in infants, [Schwartzman] 897—ab
  increasing in state, Ill., 702
  Kaadt Diabetic Institute, 1002—Ml
  low grade, in man aged 74, 216
  teeth in, 732
  thyroid symptoms, [Schulze] 725—ab
  traumatic, [Louyot] 68—ab
DIACETYL Morphine (Heroin): See Morphine
DIAGNOSIS: See also under names of specific diseases
  psychosomatic, [Hart] *147; 179—E
DIAMINON, evaluation of methadon, [Troxil] *921
DIAPHRAGM Hernia: See Hernia
DIARRHEA of newborn, [Clifford] 952—ab
  of newborn, outbreaks in hospitals (Joint Committee report), 780—OS
DIASONE treatment of leprosy, [Faget & Erickson] *451; 572; 830—E
DIATHERMY, use by general practitioners, [Horvath] *606
DICHLORO-DIPHENYL-TRICHLOROETHANE: See DDT
DICHLOROFLUOROMETHANE, toxic effects, 956
DICK, L. L., British lecturer abroad, 792
DICOUMARIN: See Dicumarol
DICUMAROL, dosage, [Barnes] 303—ab
  dosage, determine coagulation vs. prothrombin time to regulate? 955
  poisoning, [Draper] *171
  poisoning, thymol turbidity test in, 1061
  postoperative prophylaxis, [Borgström] 139—ab
  treatment in venous thrombosis, [Evans] 1070—ab

DICUMAROL—Continued
  treatment of brain hemorrhage, [Haden] 309—ab
  treatment of cardiovascular disease, [Barnes] ★301
  treatment of mesenteric thrombosis, [Engelman] 284—ab
  treatment of multiple sclerosis, 730
  treatment of thrombosis, [Deutsch] 212—ab
  treatment plus heparin of coronary thrombosis, [Barnes] 303—ab
DIET: See also Dietitians; Food; Nutrition
  Calories in: See Calories
  Deficiency: See under Nutrition
  elimination, in treatment of hypertension, [Gay] 56—C
  honey in, in heart disease, 433
  in pathogenesis and therapy of liver disease, [Ponticaccia] 67—ab
  in tuberculosis, 1073
  Infants: See Infants, feeding
  Protein in: See Protein
  Salt-Free: See Salt
  tryptophan-deficient, ocular involvement in rats on [Ferraro] 133—ab
  Vitamins in: See Vitamins
O,O-DIETHYL O-PARA-NITROPHENYL thiophosphate, parathion, generic term for, 471
DIETHYLSTILBESTROL, N.N.R., (Cole Chemical) 933
DIETITIAN, chief, made lieutenant colonel, 938
DIGESTIVE SYSTEM: See also under various organs involved
  pathology and nutrition, Spanish congress on, 128
DIGITALIS, [Gold] ★1027
  action, mechanism of, [Danielopolu] 428—ab
  allergy, (discussion) 1027—ab
  glycosides, price of, (discussion) [White] 1028—ab (table)
  glycosides, treatment of heart disease, [Barnes] 303—ab
  leaf, toxicity, (discussion) 1028—ab
  treatment, in prolonged attack of bronchial asthma, 592
  treatment of congestive heart failure, [LaDue] 949—ab
DIHYDROTACHYSTEROL treatment of sarcoidosis, [Curtis] 283—ab
DIMERCAPTOPROPANOL: See BAL
DINITROPHENOLS, alkyl, toxicologic studies, [Spencer] 1069—ab
DIODRAST clearance and tubular excretory capacity, [Josephson] 139—ab
DIPHENHYDRAMINE HYDROCHLORIDE (benadryl),acute poisoning, [Duerfeldt] 135—ab
  effect on pregnancy, 359
  prevent reaction to tetanus antitoxin, 1118
  treatment, 592
  treatment of common cold, [Brewster] 65—ab
  treatment of reactions to penicillin, [Freisbach] 579—ab
  treatment of trigeminal neuralgia, [Horton & Brennan] ★870
DIPHTHERIA, bacillus, antagonistic effect of staphylococcus, [Lesbre] 355—ab
  carriers, local treatment with penicillin; use of spray and lozenges, [Levy] ★855
  control, France, 945
  gravis, etiology [Updyke] 648—ab
  immunity in allergic children, [Peshkin] 949—ab
  immunization obtained in medical services to well children, [Hardy] ★24
  leukocyte picture during, [Baumgartner] 726—ab
  Malignant: See Diphtheria gravis
  mortality, [van Spanje] 725—ab
  polyneuritis after, vitamin B_1 in [Bøe] 139—ab
  virulence, 955
DIPLOPIA, traumatic, treatment, [Neely] 285—ab
DIRECTORY: See American Medical Directory
DIRT: See Dust
DISABILITY: See also Accidents; Crippled; Physical Defects
  evaluation, [Hellebrandt] 1113—ab
  in Veterans: See Veterans, disabled
  Industrial: See Industrial Accidents; Workmen's Compensation
  military men retired for, asks reexamination, 561—OS
  nonservice-connected, patients with, 939
  Rehabilitation after: See Rehabilitation
  retirement pensions, President Truman asks corrective legislation on, 698—OS
  work injuries, 883—OS
DISCHARGE of Medical Officers: See World War II, medical officers
DISEASE: See also Autopsies; Death; Diagnosis; Health; Pathology; under names of specific diseases
  Carriers: See Diphtheria; Streptococcus; Typhoid
  chronic illness and personality, [Ruesch & Bowman] ★851
  chronic illness, survey, Calif., 937
  chronic, incidence, 404—OS
  chronically ill, problems of aging and, report by State of New York, 180—E
  Deficiency: See Deficiency Disease (cross reference)
  degenerative, drug therapy, [Ivy] ★909
  Disabling: See Disability
  Early Rising after Illness: See Convalescence
  Epidemics of: See Epidemics
  exotic, 111—E; (correction) 483
  Hazard: See Industrial Diseases
  in Navy during World War II, 563
  Industrial: See Industrial Diseases
  Infectious: See Infectious Disease
  Mental: See Mental Disorders
  Nomenclature: See Terminology
  of Old Age: See Old Age
  periodic, [Reimann] ★239
  Physical-Mental Relationship: See Psychosomatic Medicine
  Prevention: See also Preventive Medicine
  prevention campaign, Okla., 273
  prevention week in Los Angeles, 122
  rare, medical records of veterans to be used in study of, 780—OS
  Rate: See Vital Statistics
  Sickness Insurance: See Insurance, sickness
  Treatment of: See Hospitals; Therapeutics
  Tropical: See Tropical Disease
  Volunteers to aid Research on: See Research
DISINFECTANTS: See also Bactericides
  actions of mercurial compounds (Council report) [Morton & others] ★37
  impregnate handkerchiefs to control common colds, 641
DISPENSARIES: See Clinics
DISTINGUISHED Service Medal: See World War II, Heroes
DITHIOPROPANOL: See BAL
DIURETICS, [DeGraff] ★1025
  ammonium chloride, (discussion) 1026—ab
  factor in urine, [Little] 208—ab
  mercurial, sudden death from injecting, [Oettle] 66—ab
  mercurial, use in heart disease, [Barnes] 304—ab
  parathyroid extract and, [Moehlig] 846—ab
  urea, (discussion) 1026—ab
  water, changes in arterial blood during, [Govaerts] 804—ab
DIVERTICULA: See Bladder; Intestines
DIZZINESS: See Vertigo
DOCTORS: See Physicians
  "Doctors Today": See American Medical Association, radio program
  Trade names beginning with "Dr.": See under surname concerned
DOGS: See also Rabies
  plaque for dachshund Bozo, 786
  transmission of leptospiral infections, [Molner & others] 814
DOLANTIN: See Meperidine
DOLOPHINE: See Methadon
DONATIONS: See *Fellowships; Foundations;* Library; Prizes; Research grants; Scholarships
DONNER Foundation: See Foundations
DONORS: See Blood Transfusion; *Liver inflammation; Skin grafting*
DONOVAN Bodies: See Granuloma inguinale
DOSAGE: See also under names of specific drugs
  multiple dose containers, use of, (Council discusses) 691
DREAM Sunlamp, 625
DRESS: See Clothing
DRESSINGS: See also Gauze; Medical Supplies
  court fines manufacturers of surgical bandages, 567
  Hemo-Pak Absorbable Gauze Packing Strip; Cotton Pad, N.N.R., (Johnson & Johnson) 1099
DRIED Food: See Dehydration
DRINKING: See Alcoholism; Water
DRIVERS; DRIVING: See Automobiles
DROPSY: See Ascites
DROWNING, fresh water and sea water, heart and blood in, 697—E
DRUGGIST: See Pharmacist
DRUGS: See also Medical Supplies; Pharmaceuticals; Pharmacy; and under names of specific drugs
  Addiction: See Morphine
  allergy to, [Sherman] 494—ab; [Lowell] ★665
  Anesthetic: See Anesthesia
  dose (multiple) containers, use of, (Council discusses) 691
  excretion in human milk, [Sapeika] 66—ab
  in bulk forms, unavailability; prescribing of pharmaceutic specialties, 935—E
  N. N. R.: See New and Nonofficial Remedies *and names of specific drugs*
  Pharmacopeial: See Pharmacopeia
  Prescriptions: See Prescriptions
  sale (clandestine) Brazil, 201
  Therapeutic Use: See also Chemotherapy; Therapeutics; under names of specific diseases
  therapeutic use and recent progress in nutrition, [Elvehjem] ★915
  therapeutic use in degenerative disease, [Ivy] ★909
DRUG STORE: See Pharmacy
DRUNKENNESS: See Alcoholism; Medicolegal Abstracts at end of letter M
DUCTLESS GLANDS: See Endocrinology
DUCTUS ARTERIOSUS and arteriosclerosis, 238—ab; [Blumenthal] 498—ab
  patent, surgical treatment, [Barnes] ★302; [Rodriguez Perez] 653—ab
DUODENAL TUBE tip, test to locate position, [McLanahan] ★35
DUODENUM, papilla of Vater, malignant tumors [Brunschwig] ★31
  symptoms, nephroptosis producing, [Van Duzen] 351—ab
  Ulcer: See Peptic Ulcer
DUPUYTREN'S Contracture: See Contracture
DUST, house, allergens, 289; [Rimington] 503—ab
  Inhalation of: See Pneumonoconiosis
DWARFISM and Fröhlich's syndrome, [Hurxthal] ★13
DYKE, S. C., British lecturer abroad, 792
DYSENTERY: See Diarrhea
  Balantidial: See Balantidiasis
DYSMENORRHEA, endometriosis in young girl, [Clark] ★690
  treatment, hormones, 730
DYSPAREUNIA: See Coitus
DYSPHONIA, 907
DYSPLASIA, fibrous, of bone, [Bogart] 206—ab
DYSPNEA: See Asthma
DYSTROPHY, adiposogenital, Frohlich's syndrome, [Hurxthal] ★12; 908
  Muscular: See Myasthenia

DEATHS

A

Adamson, Adam Hancock, 275
Adamson, William J., 890
Ader, Henry Fernand, 840
Alcorn, Archibald John, 637
Alexander, Anson C., 890
Alexander, Cassius D., 197
Alexander, George Everet, 943
Alexander, J. Lloyd, 890
Alexander, Joseph Long, 943
Alexander, Laurence Gibbons, 51
Alexander, William P., 890
Alger, Warren W., 890
Allen, Jessie Petrie, 51
Allen, Oscar, 890
Allison, Charles D., 996
Alrutz, Louis Ferdinand, 341
Ambrose, Elmer Cleo, 275
Andersen, Arnt Grundtvig, 569
Andersen, Lavin Milford, 126
Anderson, Ella Mary, 637
Anderson, Jarvis Lee, 197
Anderson, William J., 51
Andrews, Fred Taylor, 840
Apple, Elmer Lawrence, 275
Arkin, Louis, 51
Armstrong, William Coleman, 197
Arnecke, Christopher Adam Henry, 125
Assante, Pasquale, 637
Atcheson, George, 996
Atkinson, Frank Peabody, 789
Augustus, Charles Grant, 890
Austin, Florence Widney, 996
Avedisyan, Avedis Der, 484
Avery, Karl George, 52
Axelson, Oscar Arthur, 706
Aycock, Thomas Bayson, 1059

B

Bailey, Garnell, 275
Bailey, Karl Roland, 996
Bailey, Theodorus, 125
Bailey, William Simpson, 637
Bain, John Baxter, 341
Baird, James, 569
Baker, Julian Crawford, 484
Baker, Linus Terrell, 1059
Baker, William Harry, 275
Ball, William Augustus, 125
Ballantyne, James Van Horne, 890
Balmenti, Crescent Frank, 996
Baltz, Thomas A., 706
Bankerd, Howard Roswell, 637
Banks, Charles W., 996
Banks, William Hamlin, 706
Banks, William Hulbert, 1059
Bannen, William Edward, 706
Barnes, Benjamin Spafford, 789
Barrows, Arthur Monroe, 197
Barter, Angus J., 569
Bartlett, Clayton Witters, 943
Bascom, Frank Tully, 197
Battenfeld, Jesse Raymond Jr., 892
Baughn, Edgar Buren, 484
Baum, Ewald George, 197
Beals, Lynn Staley, 51
Beard, Paul Hogue, 789
Beattie, James Glen, 890
Beaver, Harvey, M., 341
Becket, George Crocket, 341
Behrens, Louis Henry, 1059
Belue, John Columbus, 197
Benitz, George William, 706
Bennett, Freeman Elisha, 1059
Bennett, John Albert, 637
Bennett, Oscar E., 484
Biggs, William Eli, 484
Bina, Albert Francis, 890
Black, Herbert Octavius, 996
Blackshear, Gill Wyeth, 275
Blanton, Martin A., 706
Blauvelt, Gerrit F., 414
Blitch, Joseph Jackson, 341
Bock, Walter August, 275
Bockoven, William Alonzo, 943

Deaths—Continued
Bodge, Joseph Perley, 51
Boguskie, William Michael, 184
Bollinger, Edward, 789
Bonham, Charles Percy, 197
Bookman, Milton Ralph, 275
Borland, Alexander, 414
Bosley, William Clement, 637
Boss, Henry, 184
Boswell, Grace Mott, 996
Boucek, Charles Frank, 1059
Boulware, Judson Powell, 51
Bourne, Laura Mary Hobbs, 414
Bousfield, Midian Othello, 1059
Bower, George Cummings, 637
Bowers, John Edson, 789
Bowman, Edward Sinnet, 1059
Boyd, Melville Grant, 637
Boyers, Charles Lesley, 996
Braden, James Marshall, 943
Bradley, Ernest Brennan, 184
Brake, Charles Arthur, 341
Braner, Harry Edward, 789
Branson, Joseph Holmes, 637
Brantley, John Q., 637
Braun, Edgar Marx, 943
Brennan, John Joseph, 789
Brewster, Warren Augustus, 276
Bridges, Ronney Hunter, 996
Brien, William Miller, 184
Bright, James Cooper, 341
Brinsmade, Daniel Bradley, 125
Brittain, Robert, 996
Brooks, James Henry, 276
Brosius, Mary Alice, 1059
Broughton, Luke D., 789
Browand, Norman Christopher, 637
Brown, James Blaine, 341
Bruner, Charles Herbert, 569
Bryant, William Cullen, 996
Bugg, Luther Francis, 996
Burbank, William O., 943
Burgess, Thomas Earl, 789
Burgess, William Henry, 125
Burgess, William James, 125
Burke, Fabian Joseph, 184
Burnam, Curtis Field, 637
Burns, John Robert, 789
Butler, J. S., 996
Butterfield, Edwin Rutherford, 637
Byler, Charles Elbert, 125

C

Cadenhead, James Frank, 637
Cadwallader, Rawlins, 197
Cahill, Elizabeth M., 789
Caldwell, George H., 484
Callery, Albert Liddell, 706
Califas, Jennie M., 484
Calvert, Howard Allen, 637
Cambre, Adrian LeRoy, 414
Camp, William Alvin, 943
Canfield, Herbert Warren, 276
Capehart, William Mack, 197
Carman, Edgar M., 125
Carmella, Francis Albion, 706
Carmichael, Paul Wiles, 789
Carmody, William Francis, 996
Carr, Knowles K., 996
Carr, William Henry, 484
Carr, Willis H., 789
Carstarphen, William Turner, 341
Carter, Benjamin L., 943
Cassell, William Haller, 890
Castle, William Rogers, 637
Cavanagh, Charles Joseph, 890
Chaffee, Jerome Stuart, 569
Chaffers, William H., 569
Chance, Joseph Harvey, 197
Chandler, Henry Milligan, 197
Cheney, Clarence Orion, 414
Chenoweth, Albert C., 125
Chiasson, Timothy L., 637
Chilson, Alvin Harvey, 125
Chittenden, Arthur Smith, 706
Chittick, William Rufus, 890
Clardy, Floyd, 638
Clark, Bert B., 276
Clauser, Albert Charles, 485
Clawson, Joseph C., 51
Claypool, John Blayney, 789
Clemons, Emanuel Robert, 789
Climenko, David Robert, 341
Coggin, Charles Benjamin, 890
Cohen, Simeon, 341
Coleman, George Vincent, 789
Colglazier, Donald Lee, 276
Collins, Howard D., 51
Conkling, Clifford W., 1108
Conkling, Edward D. G., 414
Conley, Everette Virgil, 996
Conlin, Frank Matthew, 706
Conn, Ralph Edmund, 569
Connaway, John Waldo, 485
Conway, Frederic Charles, 789
Cook, Eliza, 638
Cooley, Clifton Mather, 125
Cooper, Andrew Jackson, 943
Cooper, Earl, 341
Cooper, Lucy C. Vrooman, 485
Cooper, Ross Alvah, 341
Cooper, Thomas Egner, 996
Cooper, Wilfred Leslie, 276
Copeland, Charles C., 569
Copeland, Elmer Humphrey, 789
Coplin, Okey Warren, 125
Cousens, Marshall Albert, 485
Cox, James Harry, 341
Coyne, Thomas Joseph, 638
Craig, James Alexander, 1108
Cramer, Chester Owen, 789
Crane, Albert Loyal, 185
Crane, Howard Clifton, 276
Crawford, William Henry, 638
Crawshaw, John Allen, 276
Cressler, John Webster, 414
Crook, Whitfield Walker, 638
Cross, Ralph Cline, 790
Croteau, Joseph Thomas, 996
Crowe, Thomas J., 840
Cudd, James Errle, 638
Cueto, Andre Alexander, 276
Curtis, Charles Leverett, 790
Curtiss, William Loren, 276

D

Darbyshire, Morris Alfred, 890
Darlington, Horace H., 706
D'Arms, Harry Lee, 341
Davenport, John Robert, 892
David, Frank Elmer, 185
Davidson, Noah Albert, 944
Davis, Charles A., 341
Davis, Littleton, 890
Dean, Michael Francis, 997
Deck, Melvin Denver, 126
Deering, Albert Benson, 706
De Jarnette, Chertsey Hopkins, 997
Dejnozka, Emanuel Jr., 126
Delano, Samuel, 185
DeLong, Robert Brigham, 197
Demarest, J. Willis, 569
Denman, Daniel Meeker, 706
DePrume, Jules Jehin, 341
Deyoe, Charles Payson, 790
Dibble, John, 892
Dickerson, Spencer Cornelius, 711
Dickman, Hyman, 638
Dickson, Hervey John Smith, 790
Dieter, Charles August, 185
Dishong, Gustave William, 638
Dittmer, Henry Aaron, 638
Diverty, Henry Beherald, 485
Dixon, James W., 569
Doll, Libby Russell, 638
Donges, Clarence Bernard, 51
Donham, Robert Cecil, 341
Donkle, Lucius Boardman, 790
Doty, Maurice F., 890
Dougherty, Paul Sarsfield, 51
Douglas, Vivian Inez, 197
Dowling, George Aiken, 414
Downey, Frank Sylvester, 52
Doyle, Thomas Francis, 891
Drane, James E., 997
Drew, Henry Cecil, 276
Drinkwater, Wilbert G., 790
Drisdale, William E., 706
Drostenfels, Roman W., 891
Druce, Orla Andrew, 891
Duffy, Mark Matthew, 638
Dunning, Walter Livingston, 638
Durner, Urban Jacob, 997
Durning, Charles Francis, 891
Dusch, Joseph F., 485
Dyson, John Rose, 341
Dyson, Thomas Noah, 485

E

Early, Bernard Heath, 485
Echeverria, Martin John, 485
Eckel, O. F., 276
Edelstein, Henry, 891
Edgar, James Harvey, 125
Edwards, Sarah May, 638
Edwards, William Kenneth, 414
Egan, Gregory Joseph, 790
Elder, Harold Alexander, 276
Elliott, Henry Randall, 276
Ellis, John Marion, 414
Ellis, Stanley Burt, 891
Ellison, Gayfree, 125
Elting, Arthur Wells, 706
Elton, Albert Morten, 790
Emanuel, Roy Edgar, 944
Enders, George John, 51
Engelhardt, Hugo Anton, 997
Engle, Ralph David, 1108
English, John Nelson, 997
Ennis, William Murray, 890
Erwin, James Edward, 485
Estill, William G., 638
Evans, Joseph Otto, 638
Evans, Rebecca Mortimer, 342
Exley, Howard Trivers, 197
Ezell, Walter Leonard, 485

F

Fales, Warren Dexter, 997
Fallis, William Edgar, 706
Farmer, Harry Lawrence, 706
Farrell, Benjamin Peter, 706
Farrior, James William, 706
Fasbender, Herman Albert, 997
Federowicz, Joseph Anthony, 415
Feigenoff, Israel, 51
Ferraro, William Anthony, 51
Ferster, William Rollie, 638
Finlay, Robert Conway, 125
Finnerty, William Joseph, 891
Finsand, Victor, 342
Fischer, Edward Harris, 790
Flaherty, Tom Titian, 892
Fleming, Mark Lance, 706
Flemming, Herbert Maurice, 790
Flinn-Jordan, Minnetta C., 125
Flood, Robert E., 810
Floyd, Ashby, 125
Forbes, George I., 276
Foster, Dewey, 485
Foster, Simon Sylvester, 638
Fowler, T. H., 790
Franklin, Ernest James, 997
Freese, John Andrew, 840
French, Virgil Ward, 891
Frick, Herman C., 891
Friedman, Samuel, 840
Frink, Claude Augustine, 638
Froney, Maynard Arthur, 891
Frost, William C., 569
Frye, Augustus Harris, 276
Fudge, Herbert William, 997
Fuller, Edwin Motley, 810
Fuller, Ray Thomas, 997
Furlong, Robert David, 125

G

Gaffney, John Charles Jr., 343
Gagnon, Fortunat, 569
Gallagher, Daniel Ignatius, 997
Gallagher, Edward Thomas, 569
Gallant, Benjamin Franklin, 637
Gallemore, Joseph Marshall, 52
Galloway, Walter S., 891
Gambill, William Henry, 840
Gamble, Joseph William, 52
Gamble, Paul Middleton, 125
Gammage, Arthur Edison, 569
Garrett, James Frank, 276
Genter, Arthur E , 52
George, James DeWitt, 638
Gibson, Cecil Hubert, 891
Gilbert, Percy Emerton, 276
Gildersleeve, Charles Child, 275
Ginsberg, William, 125
Glasgow, Dan Fulkerson, 569
Glasgow, Thomas M., 638
Glasston, Hyman Maurice, 125
Glines, Walter Ashley, 570
Goetz, George Alfred Victor, 485
Goff, Sidney Britton, 840
Goodman, Clifford S., 997
Goodrich, Edward P., 414
Goodwin, Francis Chappelle, 484
Gould, Margaret Ann, 125
Gould, Marvin Myers, 638
Gramling, Henry J., 840
Grant, Arthur Sheldon, 790
Graves, John Henry, 890
Green, Albert Jefferson, 276
Green, Dove Walter, 891
Green, George A., 891
Greenberg, Irving, 125
Greene, Louis Storrow, 341
Greenspahn, Solomon, 342
Greenwood, Arthur Moses, 790
Grice, Joseph, 276
Grissom, Thomas S., 125
Gross, Daniel Webster, 414
Gross, Moritz, 638
Grundy, Gordon Milton, 638
Grunwald, Frederick, 125
Guay, Andrew Joseph Lorne, 485

H

Hagaman, Robert Lee, 125
Hall, Alexander R., 570
Hall, William, 414
Hambleton, Benjamin Franklin, 637
Hamilton, James Kiah, 570
Hamilton, Royal Graves, 891
Hammer, Loring, 570
Hammond, Nettie, 790
Handelman - Kalashinkoff, Pauline, 485
Hanford, Frank Wood, 276
Hankey, Daniel Clyde, 570
Hanscom, Howard Chapin, 276
Harder, Herman P., 891
Hardesty, William H., 1108
Hardin, Hal White, 790
Harper, Charles Nicholas, 638
Harper, Lexius Henson, 891
Harrah, Frank West, 342
Harral, Pinckney, 890
Harrington, Timothy Louis, 790
Hart, John Edmond, 485
Hart, Walter Chester, 197
Hartley, Harold H., 891
Hartman, John Calvin, 638
Hartwell, Dausa Dow, 570
Haskell, Charles Cheves, 638
Hauser, Selmar Frederick, 638
Hawkins, Thomas Southall, 638
Hayes, Thomas Hirst, 415
Hayward, John Albert, 1108
Heath, Harriet M. Allen, 997
Heaton, William Daniel, 997
Heiman, Henry, 570
Heintzelman, Joseph A., 342
Henderson, Francis Freeman, 570
Henderson, Richard Tullar, 891
Hengerer, Augustus William, 485
Hervey, Clifford Reeder, 197
Hesser, Frederick Edward, 638
Hickman, John Moore, 414
Hilborn, Caroline Lunetta, 891
Hill, Abel LeCompte, 790
Hill, Myrtle Mary Ozias, 790
Hill, Thomas Clark, 997
Hillkowitz, Philip, 1108
Hirsch, David Isaac, 197
Hobbs, Homer La Fayette, 126
Hocking, George H., 638
Hoff, Howard Crosby, 342
Hogshire, George Riley Jr., 415
Holston, Guilford Bert, 891
Holcomb, John Hampton, 197
Holltik, George Franklin, 790
Holt, Joseph P Sr., 790
Hood, Tarlton Ambrose, 342
Hopkins, Jesse S., 414
Hopkins, Samuel Rice, 790
Horn, Albert Henry, 485
Howard, Allen Richmond, 125
Howe, Winfred Lewis, 125
Huckins, Theron Howard, 891
Huggins, James Isaac, 570
Hughes, Franklin Ramsdell, 1059
Hubner, Max, 485
Hume, Thomas Willard Kenneth, 891
Hume, William W., 342
Humphrey, Benjamin F., 638
Humphrey, John Freeman, 790
Hunsberger, J. Newton, 342
Hunt, Ernest Lerol, 1108
Hunt, Isaac Burton, 1108
Hunter, J. Ross, 637
Hurley, Walter Eugene, 638
Hutchings, Richard H., 197
Hutchinson, Henry A., 52
Hutchinson, John Edward Jr., 1108

I

Iles, Thomas Jefferson, 997
Ish, Ethan Alexander, 570
Israel, Marvin, 1108

J

Jack, William Alexander, 706
Jackson, Douglas Algot, 790
Jackson, Lewis L., 1108
Jacobs, Herman Samuel, 638
Jeffers, George Delmont, 52
Jennings, Mary Louise, 1108
Johnson, Carl Emanuel, 638
Johnson, Clark Moore, 890
Johnson, Elizabeth Mowat, 891
Johnson, Henry Lincoln, 706
Johnson, Howard Elmer, 276
Johnson, Oliver M., 570
Johnson, Samuel Edward, 570
Johnston, Theodore, 125
Jones, Raymond Child, 707
Jones, Rilus Eastman, 790
Joyce, Charles P. F., 891
Judd, Edward Payson, 790
Judd, Ernest Hart, 342

K

Keay, Elizabeth Abbie, 790
Keeley, James Cecil, 485
Keenan, Albert Joseph, 52
Keller, William Charles, 570
Kellner, Frank Everts, 891
Kelly, Harry Raphael Jerome, 197
Kelly, John Francis, 638
Kelly, Paul Harold, 1108
Kelly, Richard James, 638
Kennington, Dillon James, 342
Kenzie, William Newton, 197
Kepler, Edwin John, 52
Kerr, John F., 276
Kerr, Mark M., 840
Keylor, Walter Norwood, 570
Kiefer, Frank John, 790
Kierland, Peter Ernest, 638
Killian, Wayne Theodore, 125
King, George Clifford, 790
King, Harry S., 707
King, Jack Albert Churchill, 944
King, Oscar Wentworth, 198
Kistler, John Bartlett, 790
Kitchen, William B., 485
Kleiman, Charles, 639
Knight, John Elwood, 944
Koempel, Ludwig, 997
Konrad, Edmund Carl, 342
Kramer, Jacob, 790
Krembs, Ferdinand Richard, 485
Kretzschmar, Clarence Andrew, 48
Kroulik, John, 997
Kueffer, Frederick Milton, 790
Kutscher, Martin, 342

L

La Core, Otto Marvin, 198
Lake, George N., 707
Lamb, George Franklin, 125
Landeker, Alfons Frederick, 342
Landy, Edwin F., 342

Deaths—Continued
Lane, Charles Edward, 707
Lane, Clifford McCalmont, 707
Lang, Sebastian, 707
Larkin, William James, 342
Lassaline, Stanley Joseph, 790
Latham, Joseph Roscoe, 997
Latham, Luther Middleton, 707
Lathrop, Clarence P., 414
Laugeson, Lyder Laurits, 342
Lavine, Morris Julius, 707
Lawson, Thomas Adam, 997
Leaman, Walter John, 707
Le Beau, Philip Max, 414
Lefever, Clarence Homer, 944
Leonard, George Rufus, 125
Lepper, David Barnard, 707
Levine, Benjamin Meyer, 944
Levy, Edward, 198
Lewis, Avery Ionial, 570
Lewis, Robert Henderson, 891
Liefeld, Walter Link, 275
Ligon, Peyton, 52
Lindenmuth, E. Oscar, 342
Lindstrom, Charles Oscar, 342
Lippe, Charles Fisher, 943
Little, Arthur Dillard Harmon, 944
Little, Edward Orton, 570
Lockhart, Jesse Polk, 891
Lombard, Charles Sumner, 52
Loncao, Ignazio B., 570
Long, James A., 342
Long, Lewis H., 997
Longest, Ruffin, 414
Longino, Robert Edward, 840
Lord, William John, 790
Lougeay, Samuel McKee, 570
Loughlin, James Webster, 707
Lowe, Daniel W., 944
Lower, Mary Jeannette, 639
Lowrie, George B., 126
Lowrie, Walter James, 707
Luff, Joseph, 944
Luke, John Henry, 485
Luxford, William James, 276
Lynch, Marcus Henry, 707
Lyster, William John L., 569

M

Mabon, Mary, 485
McAllister, Thurman Francis, 707
McBee, Gilbert Lewis, 840
McClellan, Robert Price, 639
McClung, William Dennis, 342
McConnell, Orban Gayle, 126
IcCready, Robert Lyness, 840
IcCue, Joseph Douglas, 52
IcCullough, William John L., 414
McDonald, Charles Allen, 570
McDonald, Ray Thomas, 570
McDonnell, Ralph Edward, 484
McDougald, John Quincy, 570
McEuen, Oliver, 276
MacGeagh, James Franklin, 570
McGrath, Edwin Robert, 570
MacGray, Charles Leverne, 891
McGurk, Thomas Edward, 840
McIlvain, Edwin Hulme, 1059
MacIntyre, Donald Edward, 570
McKee, Mary H., 198
McKenna, Charles Hugo, 342
McKenna, Florence Jess Correll, 840
McKeown, Elmer Eason, 198
McKinley, Ocy May Crawford Johannes, 840
MacLachlan, Archibald Alexander, 943
MacLafferty, Bernard Norton, 944
McLaughlin, William Henry, 840
McLeod, James Carlisle, 485
McLeod, Neill Henry Jr., 342
McLoone, James Egan, 414
McMakin, Ward Benefiel, 639
MacMillan, John Archibald, 944
McNeil, Edmund Johnson, 126
McNulty, John James, 892
McPherson, Solomon L., 891
Madden, Alfred Lawrence, 198
Magan, Percy Tilson, 569
Maguire, Leo Martin, 342
Major, William, 840
Manley, James Rollin, 198
Mann, Albert Howell, 198
Manzer, Tilden T., 707
Marshall, William Henderson, 840
Martel, Leon Alphonse, 197
Martin, Sergeant Price, 997
Martin, William Halbert, 414
Martindale, Edward Lowry, 485
Marum, Arthur Friedrich, 891
Marum, Gottlieb Joseph, 840
Mason, Kirk Patrick, 997
Massey, Clarence Sherman, 342
Matlock, Clarence E., 891
Maurits, Reuben, 342
Maxey, Fred Wasco, 944
Maxwell, James Graham, 342
May, James Vance, 789
Meade, Charles C., 944
Mears, John Bowdoin, 639
Meck, Gertrude Kirkpatrick, 486
Medders, Charles Hamilton, 198
Meents, Diedrich Janssen, 342
Meloy, Arthur Nourse, 342
Mencke, John Bernhard, 997
Mengel, Samuel P., 415
Merz, Charles Hope, 198
Metzer, Sarah May Edwards: See Edwards, Sarah May
Meyer, Marshall William, 997
Meyer, Robert Otto, 998
Michell, George Washington, 342
Mildren, Forest Ray, 790
Miller, Edwin S., 707
Miller, Evelyn Doleres Mosteller, 486
Miller, Frederick Christopher, 790
Miller, Harry Garrett, 637
Miller, Hiram Edgar, 637
Miller, Hugo, 790
Miller, M. Jeanette Scott, 486
Miller, Samuel Rush, 791
Miller, William Jackson, 892
Millhoff, Clarence Beacom, 944
Mills, George U. Grant, 486
Mills, Harry Brooker, 789
Mimms, Carney Wilson, 486
Minus, Joseph Arthur, 198
Mitchell, Harry Fitzroy, 791
Mitchell, Robert Jack, 126
Moffitt, Edwin Jay, 791
Moir, John Garnet, 198
Monmonier, Joseph Carroll, 1108
Montgomery, Albert Horr, 996
Moody, Philip Earl, 342
Moody, Terrell, 198
Mooney, Charles James, 486
Morley, George A., 944
Morrison, Caldwell, 791
Moses, Joseph Jr., 943
Mount, William Chalmers, 570
Muench, Virgil Orin, 998
Mulder, Ernest Ivan, 198
Mulligan, Augustine Joseph, 198
Mullins, Hugh William, 639
Munkwitz, Frank Hermann, 198
Munson, Samuel Edgar, 275
Murphy, Frank Thomas, 198
Murphy, Fred Towsley, 943
Murphy, Harold Alphonsus, 126
Muschlitz, Charles Henry, 791

N

Nance, Willis Orville, 890
Nason, Albert L., 342
Nealley, Willis Grafton, 998
Neff, Frank Chaffee, 789
Neiberg, Carlton Maurice, 126
Nesbitt, Jennie E., 415
Newman, Edwin Dunn, 791
Nonidez, Jose F., Sc.D., 634
Norris, John Alva, 1108
Northridge, Robert James, 52
Nourse, Upton Darby, 415
Nunn, John C., 791
Nutting-Sanborn, Mary Ann, 126
Nye, Howard Holland; 791

O

O'Brien, William Austin, 275
Ochs, Clara Mary, 342
Oliver, Alfred Shelton Jr., 570
O'Neill, Joseph Berchmain, 639
O'Reilly, James Archer, 51
Orr, Hugh Montgomery, 342
Osincup, Gilbert Seymour, 943
Overton, David Wilmot, 343

P

Page, Joseph Leon, 198
Pagniez, Philippe, 945
Palmore, Ewing Lamb, 791
Paris, Jennie Leigh Kellogg, 343
Parker, Francis Power, 998
Parker, Frank Benjamin, 998
Parker, Horace Norton, 998
Parker, John Wilson, 998
Parks, Harold Darby, 998
Parrish, Albert Taylor, 343
Parsons, Antony, 570
Parsons, William, 570
Paton, Thomas Lloyd, 198
Patrick, Philip Lawrence, 126
Patterson, John, 343
Paulin, James Frank, 570
Pearre, Merton S., 343
Peay, Alton Terrill, 276
Peck, Ralph Emory, 791
Peet, Edward Wright, 707
Pelletier, William Joseph, 484
Pelton, Leverett Francis, 198
Peniston, Paul, 486
Pennington, Jefferson Cumley, 569
Pennington, John Wesley, 892
Pepper, William, 484
Perkins, George Allen, 791
Perkins, Jay, 275
Perkins, William Robert, 707
Perrine, Jonathan Bennett, 892
Peters, William Francis, 415
Pettay, Phillip Howard, 840
Pettus, William Jerdone, 707
Phillips, Benjamin Lane, 343
Philp, William Stewart, 707
Phipps, William Giles, 343
Pick, William, 52
Pindar, William Aloysius, 343
Pinner, Max, 341
Pohle, Frederick John, 892
Porter, Minor Gibson, 343
Porter, Joseph Alexander, 1108
Powell, Ellis, 415
Prewitt, James V., 126
Price, John W., 892
Probert, William Henry, 998
Proctor, John Marvin, 126
Pryor, James Chambers, 197
Pulliam, Samuel Brown, 998

Q

Quinn, John Randolph Jr., 639

R

Rabethge, Charles Armand, 126
Rahter, John Howard, 791
Ratnoff, Nathan Osher, 789
Rawls, Julian Lamar, 569
Raynolds, Randolph, 343
Redmond, Edwin Thomas, 198
Redwine, Word, 276
Reese, John Arnold, 707
Reeves, Thomas Kevin, 892
Reiter, Henry W., 275
Rembe, Reinhard, 486
Remer, William Henry, 998
Reno, Morris Hamilton, 198
Revell, Arthur T., 639
Reynolds, Alonzo Leroy, 639
Reynolds, Harold Irwin, 707
Reynolds, Nathan Oyler, 486
Rhoda, Robert Gordon, 276
Rice, John Dexter, 126
Richardson, Bruce, 486
Richardson, William Hadley, 706
Riley, Augustus Baxter, 791
Ring, Philip Lee, 998
Roberts, Kingsley, 414
Robertson, Donald Ford, 343
Robinson, Joseph Harrison Jr., 707
Robinson, Ralph Dresden, 639
Robinson, Richard William, 707
Roche, Charles Frederic, 1108
Rock, Samuel William, 486
Rodebaugh, George Clifton, 486
Rodgers, Floyd Dwight, 486
Rogers, Edward Holton, 1108
Rooney, Charles Edward, 343
Rooth, Herriot C., 486
Rose, John Turner, 998
Rosenbaum, Lambert William, 791
Rosenzweig, Noemi, 486
Ross, Neff Lloyd, 639
Rossiter, Frank Saylor, 486
Rowell, Lawrence Weldon, 892
Rowse, Richard Frederick, 707
Rudder, John Waymon, 276
Ryan, De Mont, 415

S

Saling, John Phillip, 791
Salvin, Arthur A., 570
Sames, William Walter, 343
Sample, Thomas Nelson, 791
Samson, Laurel Erceldene, 1109
Sandberg, Carl Eric, 791
Sandresky, Paul Henry, 343
Sandy, Thomas H., 343
Sansum, William David, 791
Sasse, Otto, 892
Satterlee, Richard Covert, 637
Savin, Thomas Littleton, 276
Sawyer, Frank Everett, 486
Sayer, John Wilson, 126
Scammell, Frank George, 791
Schaefer, Eugene Paul, 998
Schaffner, Boyd Willamber, 639
Schanz, Robert Felix, 998
Schaufelberger, Frederick J., 343
Schefcik, John Francis, 791
Schisler, Edwin Jacob, 1109
Schmoldt, Frederick J., 276
Schnee, Benjamin, 998
Schoen, Ernst R., 944
Schonwald, Philipp, 791
Schoon, Harold William, 486
Schriefer, Ernest Edward, 343
Schroder, Mae Catherine, 1109
Schubert, Felix Herbert, 276
Schwab, Sidney Isaac, 341
Schwartze, Erich Wilhelm, 343
Scull, Eleanor L., 840
Seale, Charles Edward, 639
Sears, Keith, 126
Seikel, George Ralph, 52
Selinger, Elias, 791
Seliskar, James M., 126
Senn, Christian Ulrich, 944
Senn, Emanuel John, 570
Shaffer, Foster Clarke, 126
Shankland, James Wilbur, 343
Sharpe, Frank Alexander, 484
Sharpless, William Truman, 198
Shaw, Jesse Washington, 791
Shelksohn, Otto W., 998
Shepard, Edwin Heddon, 791
Sherman, Byron Grant, 198
Sherman, William Palmer, 791
Shields, William Arthur, 791
Shirkey, D. W., 486
Shirley, John M., 791
Shoenfield, Adolph, 1109
Shope, Samuel Z., 52
Shumaker, Edgar Kimmel, 52
Shute, Furman Robbins, 52
Sibley, Benjamin Ernest, 486
Siddall, John Richard, 343
Siddle, Robert William, 791
Siegel, Ferdinand Francis, 791
Siekert, Hugo Paul, 276
Siever, Abraham Joshua, 1109
Silbernagel, Charles Edward, 52
Sill, William Miller, 52
Simmel, Ernst, 343
Simmons, Cash L., 791
Simon, David Lewis, 1109
Simonton, Edgar L., 639
Simpson, John Nathan, 484
Sinclitico, Joseph A., 707
Skidmore, Horace Adam, 707
Skinner, Richard M., 791
Slater, James Garfield, 198
Sloan, Edward I., 639
Sloan, Thomas Dwight, 1059
Small, Emery Frank, 486
Smalley, Mahlon Cross, 998
Smith, Archibald, 791
Smith, Clarence Henry, 51
Smith, Frank Wallace, 791
Smith, Jay Dickey, 486
Smith, Jeff D., 998
Smith, Leo Max, 52
Smith, Samuel, 1108
Smith, Seth Paine, 791
Snow, Minabel, 343
Snyder, Donald Carl, 637
Snyder, George A., 892
Snyder, John Howard, 343
Snyder, John Robert Thompson, 198
Solis, Jeanne Cady, 892
Sommer, James Charles, 486
Sondern, Frederic Ewald, 125
Sory, Leander Franklin, 1109
Southard, Dallas, 343
Southgate, Frank H., 52
Sparks, David S., 1109
Speck, George McClelland, 639
Spencer, Charles Edwin, 570
Spengler, Nathaniel L., 639
Spilsbury, Bernard, 344
Sprague, Seth Billington, 639
Stafford, William Thompson, 892
Stayner, Ira Clarence, 415
Steele, Frank Bell, 639
Stein, Frank J., 1109
Steiner, R. E. Lee, 998
Stephens, Charles E., 486
Sterrett, Herbert D., 126
Stevens, Arthur Tumpin, 639
Stevens, John, 1109
Stevens, Lawrence Hefron, 52
Stewart, Henry Boardman, 52
Stewart, John Hardin, 52
Stewart, Matthew A., 276
Stillson, Hamilton, 1109
Stone, Oliver Morton, 52
Stonecipher, Alva Ellsworth, 707
Stonesifer, Edgar Blaine, 998
Stout, Clayon Evan, 1109
Stradley, Perry C., 52
Straehley, Erwin Sr., 343
Strauch, August, 126
Strickland, Edgar Eugene, 1109
Strickler, James Porter, 126
Strock, Henry Barrell, 639
Stuilleball, Andrew Jackson, 791
Sugg, Oscar F., 126
Sullivan, Daniel Joseph, 840
Sullivan, Samuel, 126
Swift, Frank Louis, 52
Switzer, Alfred Morley, 1109
Sylvis, William Martin, 52

T

Tanner, Walter Lewis, 944
Tarun, William, 706
Tatum, Henry Fletcher, 791
Taylor, Edward F., 52
Taylor, Walter Shaffer, 52
Taylor, William S., 1109
Teague, Mabel Madsen, 1109
Terrell, Edward Eugene, 126
Terrell, John Henry, 892
Terry, Harry Alfred, 639
Thomas, Charles Burleigh, 944
Thomas, Joseph Atkinson, 1109
Thompson, Edgar Vance, 1109
Thompson, Elmer Harmon, 486
Thompson, Gilbert Frank, 486
Thompson, Ralph Waldo, 944
Thompson, William H., 1109
Thompson, William Lincoln, 892
Thoms, Adolph Nicholas, 892
Thorne, Victor Corse, 1109
Tibbetts, Moses D., 486
Toal, Joseph, 343
Toland, Clarence Gaines, 51
Torok, Ervin, 486
Trammell, Willie Burt, 639
Tresidder, Donald Bertrand, 1109
Trezevant, George Montgomery, 892
Tritt, Jack Harold, 570
Trotman, James Edward, 944
Tubbs, William Ray, 1109

Deaths—Continued
Tucker, Harvey E., 840
Tulles, John Wheeler, 415
Tulupan, Ansel Harry, 343
Tussing, Perry Irwin, 1109

U

Underwood, Frank Herbert, 639
Upton, David Estell, 1109

V

Van Camp, Elijah, 707
Van Derwerker, Earl Edward, 341
Van Doren, George Bickford, 707
Vilt, Rudolph S., 52
Voigt, Ralph Arthur, 570
Vollertsen, Bernhard Henry, 707

W

Waguespack, Lionel O., 639
Walker, Landon Davies, 892
Walker, U. G. Mitchell, 126
Wallace, George Barclay, 996
Wallace, Guy, 415
Wallace, Samuel Henderson, 186
Wallace, Wesley H., 275
Wallis, William Miles, 941
Walsh, John Poler, 1109
Walshe, Thomas John, 126
Walters, Edgar Poe, 186
Walters, Lindsay O., 892
Ware, S. A., 1109
Warren, Edward Dane, 186
Warwick, Bishop Billings, 639
Wasweyler, Charles Seymour, 1109
Waterhouse, Samuel Melville, 639
Waterman, Alonzo Higbee, 415
Weaver, Bruce Stevens, 998
Webb, Albert Davis, 941
Weber, Leonard Gruner, 639
Webster, Carlos Green, 275
Webster, Rome Maynard, 570
Wechsler, Hyman, 944
Weed, Walter Alva, 707
Wehrle, Louis Gilbert, 892
Wels, Arthur Henry, 343
Welch, Oliver William, 275
Weller, Harold Eugene, 198
Wells, W. Frank, 639
Welsh, Edgemont David, 914
West, Charles Edward, 198
West, Melville Abbott, 276
Wheeler, William Davidson, 198
Whitaker, Joel, 198
Whitehead, Elizabeth F. Collins, 892
Whiting, Frederick William, 186
Wikstrom, John Floyd, 52
Will, Alan Robert, 1109
Williams, Thomas E., 275
Williams, Wilburn Cook, 1109
Williams, William Whitridge, 343
Williamson, Charles D., 639
Williamson, Edward Augustus, 941
Williamson, Thomas Valentine, 941
Wilson, Carl W., 570
Wilson, John Rufus, 276
Wilson, Joseph P., 126
Wilson, W. Lewis, 276
Wimberley, Gilbert B., 998
Windle, Benjamin Franklin, 639
Winslow, Rollin Curtis, 186
Wiswall, Robert Davis, 707
Withrow, Elizabeth Raymond, 707
Witte, William C. F., 198
Wolfe, Preston Ezekiel, 343
Womack, John E., 1059
Womack, Noel Catching, 789
Womack, William Price, 126
Wood, James Louis, 486
Woodford, Leon Gilbert, 944
Wright, Robert Herbert, 1059
Wunder, Henry E., 198
Wymer, Robert Henry, 343
Wynne, Joseph Walker, 276

Y

Yates, Elizabeth Mildred, 639
Yearick, George Irvin, 998
York, Patrick Joseph, 639
Young, Clinton Michael, 791

Z

Zink, Roy Alvin, 570
Zommick, Nathan, 198
Zook, Abraham James, 486
Zrunek, Albert, 415

E

EAR: See also Deafness; Hearing; Oto—
dermatitis of external auditory canal, 810
surgery, labyrinthine fenestration, [Hutchinson] 137—ab
tympanic membrane, rupture, [Folbre] 210—ab
EARACHE and airsickness, 288
ECLAMPSIA, fatal, [Way] 797—ab
treatment, veratrum viride and magnesium sulfate, [Irving] 494—ab
ECONOMICS, situation of Puerto Rico and Virgin Islands, [Irons] ★980
ECONOMICS, MEDICAL: See also Insurance, sickness; Medical Service
A.M.A. *Bureau of Medical Economic* Research: See American Medical Association
medical group practice in U. S., [Goldstein] ★857
ECZEMA, allergic, ethylene disulfonate for, 133
Contact: See Dermatitis venenata
EDEMA: See also Ascites; *under names of* organ and region as Eyelids; Foot; Legs; Lungs
General or Universal, of Newborn: See Erythroblastosis, Fetal
nutritional, dripping nose as early symptom, [van der Hal] 429—ab
nutritional, serum protein and forced feeding in, [Berkman] 63—ab
postmastectomy swelling of arm, [Hanelin] 799—ab
sunburn cause of, 288
EDINBURGH, University of: See University
EDITORS: See Societies, Medical
EDUCATION: See also Children, school; Students; Teachers
in Puerto Rico and Virgin Islands, [Irons] ★980
patients study while bedridden, 701
veterans, 561
EDUCATION, MEDICAL: See also Schools, Medical; Students, Medical; University
A. M. A. Annual Congress on, (tentative program) 45—OS
A. M. A. Council on: See American Medical Association
awe-inspiring examiners and panicky examinees, 894
Course: See also subhead: Graduate Course
course (didactic) on medical logistics, 700
course in atomic medicine, 410
Fellowships: See Fellowships
funds for, 831—OS
graduate, approved for postgraduate training (officers), 938
graduate course in basic sciences, La., 1056
graduate, for medical officers in American zones of occupation (Joint Committee report) 779—OS
graduate, improvements in advanced training for medical officers, 120
graduate institute on psychosomatic medicine, Ky., 121
graduate summer school, Birmingham, England, 124
graduate training, conference on, 47
graduate training in U. S. Navy, 563; 700
graduate, Yale to sponsor, 1055
Health education: See Health
Higher: See University
in Puerto Rico and Virgin Islands, [Irons] ★982
in Puerto Rico; propose Polish physicians at U. of Edinburgh move to Puerto Rico, 1101—E
Internship: See Interns and Internships
Physical: See Physical Education and Training
Residencies: See Residents and Residencies
Scholarships: See Scholarships
Seville Faculty of Medicine, 129
survey sponsored by A.M.A. Council and Association of American Medical College, 833—OS
EDUCATION, MEDICAL—Continued
training country doctors, joint fund for, Illinois, 18
U. S. Dept. of Health, Education and Security: See Taft-Fulbright Bill
voluntary support, 831—OS
EFFORT: See Strain
Syndrome: See Asthenia, neurocirculatory
EGGS, white of, and powdered blood plasma orally for gastrointestinal disorders, [Barondes] 61—ab
EGYPT, cholera in, 196; 315; 586—ab; 990
EISENMENGER'S complex and Fallot's tetralogy, [Meneses Hoyos] 725—ab
ELDERLY: See Old Age
ELECTRIC: See also Electro—;
Convulsions (therapeutic): See Electric shock treatment
High Frequency: See Diathermy
Lamp: See Baker
shock, damage to sight and hearing from, 359
shock, fatal, accidental electrocution with direct shock to brain itself, [Dickson] 723—ab
shock treatment, electrocardiographic changes in, [Altschule] 1067—ab
shock treatment, lumbopubic, for essential enuresis, [Pacifico] 653—ab
shock treatments, memory defect after, 289
shock, ventricular fibrillation abolished by, [Greene] 279—C
3atteries
ric shock treatment
lectric shock, fatal
Model C, 769
d: See Brain
ELECTROLYTES and water in shock, 832—E
changes in diabetic acidosis, [Martin] 493—ab
ELECTRON, 50th jubilee, 396—ab
microscopic study of viruses, [Wyckoff] ★1081
ELECTROPHORESIS: See Ion Transfer
ELECTROSTATIC bulb luminescence in multiple sclerosis patient, 591
ELECTROTHERAPY: See Electric shock treatment
ELECTROTHERMY: See Diathermy
EMBOLISM: See also Thrombosis
air, severe, [Lembcke] 140—ab
cerebral, emergency treatment of apoplexy, [Gilbert & de Takats] ★659
fat cerebral, after ether intravenously, [Lichtenstein & Sewall] ★827
in surgery on lower bowel, [Bacon & Rowe] ★978
prophylaxis at surgical clinic, [Rehn] 903—ab
pulmonary, after ether intravenously, [Lichtenstein & Sewall] ★827
treatment, division of abdominal aorta, [Cooper] 1065—ab
treatment, heparin/Pitkin menstruum, [Loewe] 425—ab
EMERGENCY, A. M. A. Council on National Emergency Medical Service: See American Medical Association
foods for emergencies, [Wilder & Keys] ★322; 330—E
service plan, Ind., 480
EMERSON Lung Immobilizing Chamber, 398
EMIGRANTS: See also Immigrants
Puerto Rico, medical mission report, [Irons] ★980
roentgen examination, England, 641
EMMERLING Lecture: See Lectures
EMOTIONS: See also Psychosomatic Medicine
disturbed children, center for, N. Y. C., 786
effect on cardiovascular system, [Burch & Ray] ★1011
EMPHYSEMA, bronchogenic, experimental, 278
Heart: See Heart hypertrophy
mediastinal spontaneous, mediastinotomy in, [Karns & Daue] ★622
sign of bronchogenic cancer, [Rigler] 650—ab
EMPLOYEES; *Employment*: See Industrial Health
EMPLOYMENT Opportunities for Physicians: See Physicians, positions open
EMPYEMA, chronic, decortication in, [Curreri] 207—ab
treatment, penicillin, [Prince] 494—ab
treatment, streptomycin, failure, [Waring] 311—ab
treatment, sulfonamides plus penicillin, 127
ENCEPHALITIS: See also Encephalomyelitis; Meningoencephalitis
causative factor in behavior disorders of children, [Greenebaum & Lurie] ★923
chances of developing Parkinson's disease after, 72
Hemorrhagic: See Polioencephalitis
in Caroline Islands, 990
smallpox vaccination and, 84—ab
virus diagnostic laboratory and practitioner, [Smadel] ★1079
ENCEPHALOMENINGITIS: See Meningoencephalitis
ENCEPHALOMYELITIS, disseminated, prognosis, [Thygesen] 429—ab
ENCEPHALOPATHY: See Brain disease
Wernicke's: See Polioencephalitis, hemorrhagic
ENDOCARDITIS, bacterial, caronamide and penicillin in, [Boger] 844—ab
bacterial, penicillin and streptomycin for, [Zeller] 1070—ab
bacterial, penicillin for, [Desbuquois] 803—ab
bacterial subacute, *penicillin in, [Hyde] 646*—ab
bacterial subacute, recent advances in treatment, [Barnes] ★301
treatment, penicillin, fate of vegetations, [Carter] 495—ab
ENDOCRINOLOGY: See *also under names of* specific glands
grants by National Research Council, 124
of Mexican Indian, [Miranda] ★542
postgraduate assembly, 196
what's new, [Thompson] ★314
ENDOMETRIOSIS *in young girl*, [Clark] ★690
of intestinal tract, [Sutler] 503—ab
warn against use of estrogenic therapy, [Bushnell] 895—C
ENDOMETRIUM, Aberrant: See Endometriosis
ENERGY, Atomic: See Atomic Energy
Metabolism: *See Metabolism*, basal
Value of Food: See Calories
ENGLAND: See also British
deaths among physicians in U. S. and Great Britian compared, [Hoff & Apperly] 795—C
no ragweeds in British Isles, [Gottlieb] 490—C
U. S. Mission to Britain, 565
ENGLISH LANGUAGE, college president places it first, 256—E
ENLISTED Men or Women: See World War II
ENTERITIS: See Gastroenteritis
ENTEROBIASIS: See Oxyuriasis
ENTEROCOCCUS, pneumonia, [Lüdin] 140—ab
ENTEROGASTRONE, treatment of peptic ulcer, [Bockus] ★294; 298—ab; [Boles] ★530
ENURESIS: See Urine, incontinence
ENZIFLUR treatment of dental caries, 731
EOSINOPHILIA, peritonitis with, [Laederich] 586—ab
pulmonary edema and, [Henderson] 206—ab
EOSINOPHILIC GRANULOMA: See Granuloma
EPENDYMOMA of nervous system, [Naffziger & Boldrey] ★98
EPHEDRINE Sulfate, 3 per cent, N. N. R., [Massengill] 329
EPIDEMIC JAUNDICE: See Liver inflammation
EPIDEMICS: See also under names of specific diseases
Colombian epidemic, 1009
Prevention: See Immunization
traced to cheese, 828—ab
under control, France, 945
EPIDERMIS: See Skin
EPIDERMOID cysts of nervous system, [Naffziger & Boldrey] ★102
EPILEPSY, activated electroencephalography, [Kaufman] 1004—ab
diagnosis, pitressin hydration test, [Cappon] 67—ab; 652—ab

EPILEPSY—Continued
  focal, cortical excision in, [Penfield] 646—ab
  musicogenic, [Shaw] 583—ab
  persons with, are unsafe drivers, [Wartenberg] 1062—C
  research at Columbia U., 412
  traumatic, 809
  treatment, mesantoin, [Fetterman] 721—ab
EPINEPHRINE, procaine hydrochloride with, N. N. R., [Brewer] 471
  use in cardiac asthma, (discussion), 1027—ab
EPIPHYSES, arrest, 849
  slipped capital femoral, treatment, [Klein & others] ★445
EPITHELIOMA, skin injury relation to, 358
EPITHELIUM: See also Tissues
  metaplasia of urinary tract, [Patch] ★824
EPSOM Salts: See Magnesium sulfate
EQUIPMENT: See Apparatus; Medical Supplies
ERECTIONS: See Priapism
ERGOGRAPHS, to evaluate disability, [Hellebrandt] 1113—ab
ERGOT, induction of labor, 1117
ERUPTIONS: See also under names of specific diseases as Herpes; Measles; Scarlet Fever; etc.
  in psittacosis, [Averbach] 726—ab
  Kaposi's varicelliform, [Ruchman] 716—ab
  rashes after vaccination, 590
ERYSIPELOID, hazards of home butchering, [Palm] 208—ab
ERYTHEMA nodosum, [Favour] 497—ab
  Solare: See Sunburn
ERYTHREMIA: See Polycythemia
ERYTHROBLASTOSIS, FETAL, breast feeding in, [Cathie] 354—ab
  etiology, transfusion; warning to physicians, [Hellman & Vosburgh] ★79
  extremely rare in first child, 71
  Rh antigen C^w and, [Lawler] 138—ab
ERYTHROCYTES, basophil stippling in hyperthyroidism, [Nizet] 585—ab
  Count: See Anemia, Pernicious; Polycythemia
  hematological individuality, 665—ab
  inclusions in hemolytic anemia, [McFadzean] 66—ab
  respiration, increased, [Pirwitz] 654—ab
  Sedimentation: See Blood sedimentation
  sickle cell disease, Brazil, 1061
  sickle cell disease with severe hematuria simulating renal neoplasm, [Abel & Brown] ★624
  Sickling: See also Anemia, sickle cell
  sickling, rapid test using Bacteria subtilis to demonstrate, [Singer & Robin] ★1021
ERYTHROMELALGIA of Head: See Cephalalgia
ESKIMOS, medical conditions in Alaska, (replies) [Seinfeld] 347—C; [Brauner] 347—C
ESOPHAGUS, Argentine Congress of Bronchoesophagology, 1st, 346; 794
  atresia (congenital), [Perrone] 647—ab
  cancer, [Bockus] ★239
  cancer causing laryngeal paralysis, [Hassin] 134—ab
  cancer, treatment, 199
  ulcer, 216
  varices, sclerosing therapy, [Patterson] 63—ab
ESTRADIOL benzoate, new test for hypocalcemia, 278
ESTROGENIC SUBSTANCES: See also Estradiol; Estrone; Estrusol
  breast cancer induced by; danger, [Rhoads] 307—ab
  breast hypoplasia and, 658
  Diethylstilbestrol: See Diethylstilbestrol
  effect on blood pressure, 290
  effect on stomach cancer, [Rhoads] 307—ab
  excretion during pregnancy, 288
  in oil, N. N. R., [Forbes] 1049
  in oil with chlorobutanol 3 per cent, N. N. R., [Breon; Forbes] 1049
  treatment, castration in women after mastectomy for cancer, 432
  treatment of menopause, 809
  treatment of prostatic cancer, [Wattenberg] 352—ab; 592
  treatment, warn against use in endometriosis, [Bushnell] 895—C
  water insoluble, N. N. R., (Carroll Dunham Smith Pharmacal Co.), 933
ESTRONE, antithyroid action, [Lederer] 140—ab
  in oil, N.N.R., (Abbott) 1049
ESTRUSOL, N.N.R., (Carroll Dunham Smith Pharmacal Co.) 933
ETHER, intravenously for gangrene, pulmonary and cerebral fat embolism after, [Lichtenstein & Sewall] ★827
ETHICS, MEDICAL, governing use of prisoners for medical experiments; Illinois Gov. Green's Committee report, ★457
  rebates, kickbacks, commissions and, 176—E
ETHYL CARBAMATE: See Urethane
ETHYLENE DISULFONATE, treatment of allergic eczema, 433
*di*ETHYLSTILBESTROL: See Diethylstilbestrol
EUDOLAT: See Meperidine
EUNUCHOIDISM, delayed pubescence and, [Hurxthal] ★14
EUROPE, Aid to: See World War II, postwar
EUROPEAN Command, neuropsychiatric survey of U. S. Army hospitals by, 47
EVIDENCE: See Medicolegal Abstracts at end of letter M
EWING, OSCAR R., National Health Assembly, Washington, D. C., May 1-4, 694—E
EXANTHEMS: See Eruptions
EXAMINATION: See American Board; Education, Medical; Physical Examination
EXERCISE: See also Athletics; Golf; Physical Education and Training
  functional tests as adjunct to physical examination, [Darling & others] ★765; 771—E
  Therapeutic: See Orthoptics
EXERTION: See Strain
EXHAUSTION: See Fatigue
EXHIBIT: See also American Medical Association, Scientific Exhibit; Health museum
  medical, at Museum of Science and Industry Chicago, 272
  on "Highlights of Military Surgery in World War II", also on "Medicine at Operation Crossroads", by Navy, 700
EXOPHTHALMOS: See also Goiter, Toxic
  malignant, [Thompson] ★316
  malignant, successful treatment, [Craig] 946—C
EXPECTORATION: See Sputum
EXPERIMENTATION: See Research
EXPLOSION, gas shadows in wounds examined with roentgen rays, [McDonald] 501—ab
EX-SERVICEMEN: See Veterans
EXTREMITIES: See also Arms; Foot; Legs
  Amputation: See Amputation
  Artificial: See Limbs, artificial
  compression of limbs and venesection in heart disease, (discussion 1026—ab
  Paralysis: See Paraplegia
EYEGLASSES: See Glasses
EYELIDS edema, treatment with thyroid, 730
  of left eye stuck to cornea on awakening; sequelae of conjunctivitis, 145
EYES: See also Blindness; Conjunctiva; Cornea; Glasses; Ophthalmology; Orbit; Pupils; Retina; Vision; etc.
  bank, report, N. Y., 566
  bank, Stanford, report, 1055
  Disease: See also Conjunctivitis; Glaucoma; Keratitis; Keratoconjunctivitis
  Eyes That Hear (film review) 348
  foreign bodies (intraocular) [Guy] 795—C
  injury from sulfur dioxide, [Grant] 1005—ab
  involvement in rats on deficient diets, [Ferraro] 133—ab
  laboratory, U. of Cincinnati, Ohio, 123
  Muscles: See Orthoptics
  paralysis (bilateral) in poliomyelitis, [Wright] 205—ab
  pigmentation in workers making hydroquinones, [Anderson] 1005—ab
  Protrusion: See Exophthalmos
  silver nitrate applied to, 146
  Smith-Clark Eye Clinic, La., 785
  syphilis, penicillin for, ★87
  tumors, in infants and children, [Dargeon] ★463
  ultraviolet radiation pathologic effect on, [Coblentz] ★1042
EYESIGHT See Vision

F

FABRICS: See Textile
FACE: See also Eyes; Lips; Mouth; Nose; etc.
  Masks: See Masks
  paralysis, surgery of 7th nerve, [Tickle] ★969
  swelling (chronic), Melkersson's syndrome, [Kettel] 133—ab
  traumatic diplopia, [Neely] 285—ab
  wrinkling (premature) of skin of, 216
FACTORY Workers: See Industrial Health; etc.
FACULTY of Medicine: See Schools, Medical
FAINTING: See Syncope
FALLOPIAN TUBES: See Oviducts
FALLOT, *Tetralogy of*: See Heart *anomalies*
FAMILIES: See also Children; Heredity; Infants; Marriage; Maternity; Paternity; Reproduction
  Harvard to study family life, 887
  size as factor in health obtained for well children, [Hardy] ★25
FAMINE Edema: See Edema
FARM: See Rural Communities
FASCIA: See also Contracture, Dupuytren's
  defects, *periosteum for repair in* paratibial region, [Giannestras] 496—ab
FASTING: See Hunger; Starvation
FAT: See also Acid, fatty; Obesity; Oil; Oleomargarine
  Embolism: See Embolism
  in Feces: See Feces
  metabolism, role of acetic acid in, 771—E
  nutrition, [Scheer] 424—ab
  shortage, [Wilder & Keys] ★326
FATHER: *See Paternity*
FATIGUE: See also Asthenia; Strain
  of allergic origin in behavior problems, [Randolph] 581—ab
FATTY Acids: See Acids
FECES: See also Sewage
  bowel movements, training children, [Spock] ★812
  Defecation: See Diarrhea
  fat in, etiology of steatorrhea, [Frazer] 345—ab
FECES—Continued
  filtrates, given orally to transmit gastroenteritis to volunteers, 987—E
  Fistula: See Fistula
  poliomyelitis virus in, [Francis & others] ★1088
FECUNDATION: See Impregnation, artificial
FECUNDITY: See Fertility
FEDERAL: See also United States
  Control of Medical Care: See Medicine, socialized; Medicine, state
  Employees: See United States employees
  Income Tax: See Tax, income
  Legislation: See Laws and Legislation
  Security Agency, assistant administrator, 476
  Security Agency, 10-year study of national health, 476
  Sickness Insurance Scheme: See Wagner-Murray-Dingell Bill
  Trade Commission surveys advertising, 402—E
FEDERATION: See Societies at end of letter S
FEEBLEMINDED: See Idiocy; Mental Defectives
FEEDING: See also Diet; Food
  forced, in anorexia nervosa, [Berkman] 63—ab
  of Infants: See Infants
FEES, only 28 doctors accused of overcharging veterans, 936—OS
  rebates, kickbacks and commissions, 176—E; 476
  refuse to pay doctors and dentists for services to veterans, 886
FEET: See Foot
FELLOWSHIPS: See also Scholarships
  American Cancer Society approves establishing 20 annual, 881—E
  American College of Chest Physicians examinations, 995
  American College of Physicians research, 124
  A.M.A.: See American Medical Association
  Cocke Memorial, 635
  Grant Foundation, on pathology of tumors, 786
  in allergy at Northwestern, 338
  in atomic energy by National Research Council, [Warren] 418—C; 701; 939
  in child guidance clinic psychiatry, 788
  in hematology, Hematology Research Foundation, 889
  industrial psychiatric, 703
  Koessler (Jessie Horton), 702
  National Tuberculosis Association, 483
  postdoctorate research, at Yale, 413
  public health, available, 340; 703
  savings banks endow, 412
  traveling fellows from India: Natesaier Purshotan and Tara Deodhar Purshottan, 124
FEMUR, treatment of slipped capital *epiphysis,* [Klein & others] ★445
FENESTRATION Operation: See Ear surgery
FENGER Lecture: See Lectures
FERRIC: See Iron
FERTILITY: See also Families, size of; Impregnation; Reproduction; Spermatozoa; Sterility; *Sterilization,* Sexual
  restoring, anastomosis of vas deferens after, [O'Conor] ★162
FERTILIZATION: See Impregnation, artificial
FETUS: See also Infants, Newborn; Pregnancy
  congenital malformations from smallpox vaccination during pregnancy? 1009
  Death of: See also Stillbirths
  death of, hormonal test for, [Zondek & others] ★965; (correction) 1107
  endocyme fetus in infant, [Maxwell] 504—ab
  Erythroblastosis: See Erythroblastosis, Fetal
  Premature: See Infants, premature
  Rh Factor in: See Rh Factor
FEVER: See also Rheumatic Fever; Rocky Mountain Spotted Fever; Scarlet Fever; Typhoid; Typhus
  Blister: See Herpes simplex
  Cerebrospinal: See Meningitis, *cerebrospinal*
  Glandular: See Mononucleosis, Infectious
  high, hyperpyretic convulsions, [Neyroud] 429—ab; [Livingston] 580—ab
  Japanese River: See Tsutsugamushi Disease
  Malta: See *Brucellosis*
  Mite Bite: See Tsutsugamushi Disease
  Parrot: See Psittacosis
  periodic, [Reimann] ★239
  Q: See Q Fever
  Rabbit: See Tularemia
  San Joaquin: See Coccidioidomycosis
  Therapeutic: See also Malaria, *therapeutic*
  therapeutic, in inflammatory polyneuritis, *[Rosenhagen]* 585—ab
  Tick: See Rocky Mountain Spotted Fever
  Undulant: See Brucellosis
  Valley: See Coccidioidomycosis
FIBERGLAS-filled Sleepytime Pillow, 398
FIBRIN orally, stop bleeding peptic ulcers with? 1117
FIBROBLASTOMA, perineurial, of spinal *cord,* [Naffziger & Boldrey] ★102; ★103
FIBROIDS: See Myoma
FIBROMYOMA: See Myoma
FIBROSIS uteri, [Shoemaker] 1112—ab
FILARIASIS, Onchocerca volulus cause *chronic* superficial punctate keratitis, [Appelmans] 141—ab
FILMS: See Moving Pictures
FINGERNAILS: See Nails

FINGERS: See also Nails
  Abnormalities: See Arachnodactyly
  clubbing, etiology, [Mauer] 711—ab
  discoloration, and portal cirrhosis, 71
FIRE: See Burns; Explosion
FISH, foods for emergencies, [Wilder & Keys] *321
  Oil: See Cod Liver Oil
  poisoning at Fanning Island, [Ross] 847—ab
FISTULA, bronchopleurocutaneous, streptomycin in, [Vaccarezza] 654—ab
  fecal, after appendectomy, (reply) [Cunningham] 1118
FITNESS: See Physical Fitness
FLAVONES: See Rutin
FLIES, sources of poliomyelitis virus, [Francis & others] *1088
FLIGHT: See Aviation
FLOUR: See also Bread; Wheat
  allergens of mill dust, [Jimenez-Diaz] 919—ab
  whole wheat and white, proximate composition, [Maynard & Nelson] *1043; (vitamins) *1044
"FLU": See Influenza
FLUIDS: See Beverages; Milk; Water
  Body: See Ascites; Cerebrospinal Fluid; Saliva
FLUORIDES poisoning, urinary excretion of fluorides in, 590
FLUORINE and dental caries, 112—E
  treatment of dental caries with Enziflur, 731
FLUOROSCOPY: See Roentgen Rays
FLY: See Flies
FLYERS; FLYING: See Aviation
FOLIC ACID: See Acid, folic
FOLLICLE-STIMULATING HORMONE, role in hypogenitalism in puberty, [Hurxthal] *15
FONTANEL, premature closure of cranial sutures, [Simmons] 581—ab
FONTENELLE, J. P., elected American Public Health Association vice president, 55
FOOD: See also Appetite; Beverages; Bread; Cheese; Diet; Feeding; Fruit; Milk; Nutrition; Vegetables; Vitamins
  A.M.A. Council on: See American Medical Association
  canned, for emergencies, [Wilder & Keys] *326
  containers, mediastinitis *from* ingesting glass, [Steele] *554
  Cooking: See Cooking
  Deficiency: See Nutrition deficiency
  dehydration to save shipping space, [Wilder & Keys] *326
  Energy Value: See Calories
  for emergencies, [Wilder & Keys] *322; 330—E
  fresh and dehydrated, [Deuel] 424—ab
  frozen food lockers, hazards of home butchering, [Palm] 208—*ab*
  Handlers: See Medicolegal Abstracts at end of letter M
  Infant's: See Infants, feeding
  Lack of: See Hunger; Starvation
  manufacturer fined, Adolphus Hohensee, Ariz., 940
  of plant origin, [Maynard & Nelson] *1043
  poisoning, collective in boarding school, [Vaccaro] 506—ab
  poisoning from fish at Fanning Island, [Ross] 847—ab
  poisoning (staphylococcus) and cooking procedures, [Hussemann] 495—ab
  U. S. Food and Drug Acts: See Medicolegal Abstracts at end of letter M
FOOT: See also Shoes
  edema during bus trips, 358
  Madrid symptomatic complex: paresthesia of burning feet, [Peralta] 68—ab
  Warts on: See Verruca
FOREIGN Countries: See United Nations; under *names specific countries as China*
  language, teaching children to speak 2 languages at once, 1074
  Physicians See Physicians, foreign
  Relief, Greenwich Committee on, doctors aid Vienna patients, 1055
  scholarships available soon, under Fulbright Act, 836
FOREIGN BODIES granuloma, 770—E
  intraocular, [Guy] 795—C
  mediastinitis from ingesting glass, [Steele] *554
  removal from heart, [Harken] 720—ab
FORMALDEHYDE-treated poliomyelitis virus vaccines, [Gard] 724—ab
FORT KNOX experiment, social hygiene in, 1111
FOUNDATIONS, American Allergy, 483
  American Foundation for Tropical Medicine, (award of Strong medal) 196
  Borden Company, undergraduate research awards, 565
  Brayton (Alembert Winthrop) to promote dermatosyphilology, Ind., 481
  Donner, International Cancer Research Foundation, renamed, 567
  Grant (W. W.), fellowships on pathology of tumors, 786
  Hematology Research, fellowships in hematology, 889
  Life Insurance Medical Research Fund, 1058
FOUNDATIONS—Continued
  McCollum-Pratt Fund, 837
  National Foundation for Infantile Paralysis, (decade of progress) 339; (million for *poliomyelitis research*) 636
  National Science, 108—OS
  National Vitamin Foundation, (annual dinner) 50
  Nutrition Foundation, award in human nutrition, 476
  Paderewski, Polish physicians move to Puerto Rico? 1101—E
  Passano 1948 award, 1058
  Pharmaceutical-Medical Research, 12—E
  Plotz (Ella Sachs) report, 271
  Rockefeller, (research on problems to aging) 339
  Runyon (Damon) Cancer Research Fund, 1057
  Seaman (Louis Livingston) Fund, 839
  Utah Medical, lecture, 339
FOUTS, R. W., address at Cleveland Interim session, 181; 258
FRACTURES: See also under names of specific bones as Clavicle
  metabolic disturbances, [Beattie] 583—ab
FRAMBESIA, checking *spread* on Pacific Islands by U. S. Navy, 332—E
  immunity to yaws, 55
FRANCE: See also French
  public health since the liberation, 945
FREEMAN, MONROE E., appointment to medical service corps, 631
FRENCH: See also France
  Army: See Army
  Speaking Pediatricians, 12th Congress, 841
  surgery Association Congress, 50th, 200
FREON, toxicity, 956
FROHLICH'S Syndrome: See Dystrophy, adiposogenital
FROZEN Food: See Food
FRUIT: See also Apricot; Orange juice
  nutritive value, [Maynard & Nelson] *1048
FSH: See Follicle Stimulating Hormone
FULBRIGHT Act, *foreign scholarships available* soon, 836
  Taft Bill (S 140): See Taft
FUMES, welding, secondary anemia from, 658
FUND: See Foundations
FUNGI, allergens of mill dust, [Jimenez-Diaz] 919—ab
  extracts, N.N.R., (*Abbott*) 471
  prevention of mold growth on books, 658
FURUNCULOSIS, treatment, 955

G

GALACTORRHEA: See Lactation
GALLBLADDER: See also Bile; Bile Ducts
  anomalies (congenital), [Lockwood] *678
  excision, bile salts for cholecystectomized patients, 907
  radiomanometry, 945
GALLI-Mainini Test: See Pregnancy diagnosis
GANGLION, cerebral, calcification of, [Camp] 650—ab
GANGRENE, fatal in penicillin treatment, [Courty] 505—ab
  gas, chemotherapy, [Altemeier] 798—ab
  gas, experimental, [Altemeier] 132—ab
  ischemic, ether intravenously for, pulmonary and cerebral fat embolism after, [Lichtenstein & Sewall] *827
GARDEN Club, Los Angeles County Medical Garden Club show, 1105
  kitchen, [Wilder & Keys] *323
GAS: See also under names of specific gases as Oxygen
  Embolism: See Embolism, air
  Gangrene: See Gangrene
  Poisoning: See also Carbon Monoxide
  poisoning, toxic effects of gases, [Clinton] 1070—ab
  refrigerant gases, toxicity, 956
  shadows in wounds examined with roentgen rays, [McDonald] 501—ab
GASOLINE, petrol concession to doctors, England, 199
GASTRECTOMY: See Stomach surgery
GASTRIC: See Stomach
  Juice: See Stomach secretion
  Mucin: See Mucin
  Ulcer: See Peptic Ulcer
GASTROENTERITIS: See also Food poisoning
  epidemic, transmission, [Gordon] 351—ab
  epidemic, transmitted to human volunteers, by giving fecal filtrates orally, 987—E
GASTROENTEROLOGY, recent therapeutic advances in, [Bockus] *293
GASTROINTESTINAL TRACT: See also Abdomen; Digestive System Intestines; Stomach
  development of (film review), 491
  disorders in infants, streptomycin for, [Cimino] 428—ab
  disorders, powdered blood plasma and egg-white orally for, [Barondes] 64—ab
  role in regulating white corpuscles, [Boccuzzi] 721—ab
GAUCHER'S DISEASE without splenomegaly, [Morgans] 285—ab
GAUZE, filters, foreign body granuloma, 770—E
  oxidized cellulose, N.N.R., (description) 829; (Johnson & Johnson) 829
GAUZE—Continued
  oxidized, massive use in hemorrhage from major vessel, [Stewart & Cianos] *932
GEIGER, E. BURNS, personal, 784
GELATIN *nephrosis, [Skinsnes]* 353—*ab*
  sponge to control hemorrhage from heart, [Jenkins] 898—ab
  sponge cuff to control hemorrhage, [Jenkins] 798—ab
GENERAL Paralysis: See Dementia Paralytica
GENERAL Practice: See Medicine, practice; *Physicians, practicing*
  Practitioner Award: See American Medical Association
GENETICS: See also Heredity
  consulting office, Italy, 793
GENGENBACH (Franklin P.), Library, Colo., 785
GENITALS: See also Gonads; Penis; Vagina; Vulva
  hypogenitalism during puberty; use of testosterone, [Hurxthal] *12
  tuberculosis, [Clemetsen] 67—ab
  tuberculosis in urinary tract tuberculosis, percentage, 72
GEORGE WASHINGTON University, new hospital, 936—OS; 1055
GERIATRICS: See Old Age
GERMANY, Congress of German Internists, 201; *1106*
  cyclotron, 839
  Medical Department plan for supervised professional experience in U. S. occupation zone (Joint Committee report), 780—OS
  scientific medical societies organization in Soviet Zone, 1110
GERMICIDES: See Disinfectants
GERMS: See Bacteria
GESTATION: See Pregnancy
G. I. BILL OF RIGHTS, aid for officials in advising veterans who desire to enter medical school, 564
  veterans training and education, 564
GIBBS Medal: See *Prizes*
GIDDINESS: See Vertigo
GIESEN, University of: See University
GIFTS: See Donations (cross reference)
GIRLS: See Adolescence; Children
GLANDS: See under names of specific glands as Salivary Glands; Sweat Glands; Thyroid
  of Internal Secretion: See Endocrinology
  Sex: See Gonads
GLANDULAR FEVER: See Mononucleosis, Infectious
GLASS: See also Fiberglas
  button operation for intractable ascites, [Welch] 649—ab; [Lord] *767
  mediastinitis from ingesting, [Steele] *554
GLASSES, contact lenses and asthenopia, 434
  tinted lenses, [Cowan] *1098
GLAUCOMA, 5 year follow-up, [Kronfeld & McGarry] *957
  nature, [Elwyn] 498—ab
GLIOBLASTOMA multiforme, of nervous system, [Naffziger & Boldrey] *98
GLIOMA of nervous system, [Naffziger & Boldrey] *97
  of spinal cord, [Naffziger & Boldrey] *102
GLOBULIN serum available for treating measles, 889
GLOMERULONEPHRITIS: See Nephritis, glomerular
GLYCEMIA: See Blood sugar; Diabetes Mellitus
GLYCOGEN, uneven distribution in liver, [Gomori] 502—ab
GLYCOSIDE: See also Digitalis
  ventricular fibrillation abolished by electric shock, [Greene] 279—C
GOAT'S milk: See Milk
GOITER: See also Goiter, Toxic; Hyperthyroidism
  American Association for Study of Goiter, (meeting) 1106
GOITER, TOXIC, complications: periodic paralysis, [Seed] 722—ab
  mortality decline, 196
  treatment, irradiate pituitary, antithyroid drugs, radioactive iodine, [Thompson] *315
  treatment, methylthiouracil, [Barfred] 205—ab
  treatment, radioactive iodine in Grave's disease, [Chapman] 902—ab
  treatment, symptoms after subtotal thyroidectomy, 70
GOLF, American Medical Golfing Association tournament, 483
GONADOTROPINS, chorionic, N.N.R., (Breon) 329
  treatment of impotence and dysmenorrhea, 730
  urinary, hyperemia titration test for fetal death, [Zondek & others] *965, (correction) 1107
  urinary, role in hypogenitalism in puberty, [Hurxthal] *15
GONADS: See also Ovary; Testis
  deficiency in hypopituitarism, [Thompson] *315
  hypogonadism and nutritional deficiency, [Biskind] 579—ab
GONOCOCCUS *Conjunctivitis: See Conjunctivitis*, infectious acute

GONORRHEA: See also Venereal Disease
  gonococcic meningitis 15 years after urethritis, [Stigler & McLester] ★919
  Miracle of Living (film review), 575
  vaginitis, penicillin for, [Clarke] 1112—ab
GOODSPEED (Charles B.) memorial fund, 1105
GOULD, LAURENCE M., college president places English first, 256—E
GOVERNMENT: See Federal; United States
  Control of Medicine: See Medicine, socialized; Medicine, state
  Hospitals: See under Hospita's, veterans
GRAAFIAN FOLLICLE: See Follicle-Stimulating Hormone
GRADUATE Course: See Education, Medical
  Fellowships: See Fellowships
GRADUATES: See Interns and Internships; Residents and Residencies
  Foreign: See Physicians, foreign
GRAFTING: See Nerves; Skin
GRAIN: See Corn; Rice; Wheat
  Itch: See Acarodermatitis
GRAMICIDIN: See Tyrothricin
GRAND MAL: See Epilepsy
GRANT Foundation: See Foundations
GRANTS for Research: See American Medical Association; Fellowships; Foundations; Research; University
GRANULOCYTOPENIA: See Agranulocytosis, Acute
GRANULOMA caused by talc, [Saxen] 427—ab
  cerebral, due to schistosomiasis, [Chang & others] ★230
  Coccidioidale: See Coccidiodomycosis
  eosinophilic, of bone, [Bartels] 67—ab; [Ackerman] 897—ab
  foreign body, 770—E
  Fungoides See Mycosis fungoides
  inguinale of vagina and cervix uteri with bone metastases, [Packer & others] ★327
  inguinale, streptomycin for, [Kupperman & others] ★84
  intracranial, [Naffziger & Boldrey] ★101
  Malignum: See Hodgkin's Disease
  Venereum: See Lymphogranuloma, Venereal
GRASS ROOTS Conference, 833—OS
GRAVES Disease: See Goiter, Toxic
  Lecture: See Lectures
GREAT BRITAIN: See British; England; World War II
GREEN, DWIGHT H., Governor's Committee report on using prisoners as subjects in medical experiments, ★457
GREENWICH Committee for Foreign Relief, doctors aid Vienna patients, 1055
GRIP: See Influenza
GROUP Hospital Insurance: See Hospitals, expense insurance
  therapy studies, grant for, 272
GROVES, LESLIE R., atomic bomb chief promoted, 410
GROWTH: See also Bones growth; Dwarfism
  amino acids relation to, [Elvehjem] ★917
  caloric restrictions and, [Handler] 1114-ab
  of children and margarine, [Leichenger & others] ★388
  stimulation in boy of 12, 214
GRUNOW Lecture: See Lectures
GUM Arabic: See Acacia
GYNECOLOGISTS, meeting, Soviet zone of Germany, 709
GYNECOLOGY, Argentine and Uruguayan Congress of, 278
  International Congress on, N.Y., 1058
  postoperative thrombosis in patients, [Weltman] 67-ab
  surgery, anticoagulants in, [Greene] 797-ab

H

HAIR, gray, in children, 1009
HAMARTOMA, bronchial, [Itolz] 355-ab
HAMBLETON, BENJAMIN F., memorial physiology professorship, 123
HAND: See also Arachnodactyly; Fingers; Nails
  cleansing, after examining tuberculous patient, 70
  infection, penicillin for, [D'Abreu] 211-ab; [Webster] 426-ab
  injuries, management, [Woodland] 138-ab
  scar contractures, correction, [Greeley] 496-ab
HANDBOOK of A. M. A., [Bortz] 183
HANDICAPPED: See Crippled; Disability; Physical Defects
  Rehabilitation: See Rehabilitation
HANDKERCHIEFS, impregnated with disinfectant to control common cold, 641
HANOVIA Lighthouse Portable Large Group Irradiation Ultraviolet Lamps, 690
  One Burner Group Irradiation Alpine Ceiling Lamp, 691
HAPAMINE and antihistamines, simultaneous use contraindicated? 592
HARPER, CORNELIUS A., day honoring, Wis., 567
HARRISON Narcotic Act: See Medicolegal Abstracts at end of letter M
HARVARD University (to study family life) 887; (increases tuition from $580 to $800 per year) 1105
HARVEY Lecture: See Lectures
HAWAII, annual report of Board of Health, 839
HAWLEY, PAUL R., (reports VA may lose 1,000 doctors) 119-OS; (improving medical care for unified armed forces) 191—OS; (to head Blue Cross and Blue Shield plans) 270-OS; (honored) 705
HAY FEVER in high school boys, 432
  ragweeds absent from British Isles, [Gottlieb] 490—C
  treatment, pyribenzamine, [Fuchs] 578-ab
  treatment, radical cauterization of nostrils (reply) [Kaufman] 592
HEAD: See also Brain; Cranium; Face; Hair
  Erythromelalgia of: See Cephalalgia
  injuries, diplopia from [Neely] 285—ab
HEADACHE: See also Migraine
  cranial arteritis, in young woman, [Meyers & Lord] ★169
  occipital, in singer, 72
  treatment ligating or resecting temporal and meningeal arteries, [Haynes] ★538
  treatment, tetraethylammonium chloride in hypertensive patients, [Lyons & others] ★612
HEALTH: See also Disease; Hygiene; Sanitation
  American Public Health Association, (vice president) 55; (sponsors local health units) 473
  Appraisal of School Children, 698-OS; 780-OS
  board of, annual report, Hawaii, 839
  bulletin on cancer control, N. Y., 704
  Centers: See also Health, student; Health units; Medical Center
  centers, medical mission report, Puerto Rico, [Irons] ★982
  centers, 10 new district, Pa., 195
  departments, consultation services for, N. Y., 272
  departments, preventive medicine by, A.M.A. 10-point national health program, 261
  Education: See also Physical Education and Training
  Education, A. M. A. Bureau of: See American Medical Association
  education in prevention of disease, A. M. A. 10-point national health program, 265
  education unit, mobile, Ind., 481
  Examination: See Physical Examination
  federal aid, rider rejected on states practicing racial discrimination, 1052-OS
  Industrial: See Industrial Health
  Insurance: See Insurance, sickness
  International Health Organization: See Health, World Health Organization
  Is your health the nation's business? propaganda distributed to armed forces, A. M. A. resolution on, 190; 257
  League of Canada, health week, 50
  Mental: See Mental Hygiene
  museum, Dallas, receives public health award, 482
  National Health Assembly, Washington, D. C., May 1-4, 694-E; 883-OS; 1107
  National Health Bill (Taft-Smith-Ball-Donnell Bill): See Taft
  National Health Council, Dr. Bauer to represent A. M. A. at meeting called by, 475-OS
  National Health Program, Bill to Provide for: See Wagner-Murray-Dingell Bill
  National Health Program, 10-point of A.M.A., Board of Trustees report, 261
  National Health Service Act (England): See National Health Service Act
  National Institute of, (Syphilis Study Section Symposium) 271; ★873; (Experimental Biology and Medicine Institute established) 271; (seeks Bethesda site for new center) 988-OS
  National Municipal Health Congress (4th) Spain, 489
  National Negro Health Week, 787
  national, 10 year study, 476
  of London children improved despite war shortages, 571
  of U. S. Army, 1053
  Organization of United Nations: See Health, World Health Organization
  Problems in Education, A. M. A. - N. E. A. Joint Committee on, 698-OS; 780-OS
  problems of rural child, [Hill] 773-OS
  program, Florida cited for progress of, 839
  program of community, contribution of medical school to, Long Island College plan, 557-E
  Program, Voluntary: See Wagner-Murray-Dingell Bill
  public, fellowships available, 340; 703
  public, hazard, of tuberculosis patients with streptomycin resistant type of tubercle bacillus, [Oatway] 490-C
  public, in France since the liberation, 945
  public, is "social" medicine, [Emerson] 658
  regulations for air travel, England, 1060
  resorts, American, A. M. A. Committee on, recently abandoned, 475
  Rural: See Rural Communities
  school, cooperation of physician in, (Joint Committee report), 778—OS
  Service: See also Program; Health, Medical Service;
  service, follow-up of [illegible] Chicago, [Hardy] ★20
HEALTH—Continued
  Service, Student: See Students
  services, child, study, [Bain; Poncher] 774-OS
  state department reorganizes, Colo., 1105
  Statistics: See Vital Statistics
  student health center, opened, U. Nebr., 703
  Supplies: See Medical Supplies
  survey, comprehensive, N. Y. C., 195
  U. S. Department of Health, Education and Security, [Hirschfeld & Wood] 113-OS
  U. S. P. H. S.: See also Federal Security Agency; Health, National Institute of Health
  U. S. P. H. S., (reclassify occupational therapists) 121; (grants for training and research in psychiatry and psychology) 121; (new assistant surgeon: Dr. M. D. Hollis) 193; (National Advisory Council awards for cancer and control) 193; (18th annual venereal disease seminar) 479; (positions open for psychiatrists) 479; (assistance to Boy Scouts) 479; (Dr. Scheele succeeds Dr. Parran as Surgeon General) 563; 630-OS (Dr. Parran says there is a shortage of physicians) 626-E; (report on results of Hill-Burton Act) 632; (appointments to mental hygiene division) 632; (examination of nurses for regular corps) 886; (research workers wanted by) 886; (examination for regular corps) 886; (examination for pharmacists) 991; (Surgeon General Scheele testifies before committee) 1052—OS; (Scheele becomes surgeon general) 1054; (full time cancer detection center, Ark.) 1054
  Units: See also Health centers
  units, local, for nation developed by American Public Health Association, 473-E
  volunteer agencies, A. M. A. 10-point national health program, 265
  World Health Assembly, 1107
  World Health Organization, (constitution, *delay in ratifying by all 26 members of UN*) 335-OS; (U. S. not a member) 935-E; 1107
HEARING: See also Ear
  aids, Aurex, Model H, 1099
  aids, Electro-Ear, Model C, 769
  aids for children by New York League for Hard of Hearing, 49
  aids, Microtone Audiomatic, Model T4, 109
  aids, Otarion, Model E1, 108
  aids, Paravox, Model XTS, 109
  aids, Solo-Pak, 768
  aids supplied free under National Health Service, England, 999
  aids, Vactuphone, Model 3, 769
  impaired, by electric shock, 359
  industrial noise and, [Machle] 899-ab
  Loss of: See Deafness
  supersonic reproduction on gramophone records, 199
  testing (audiometric) resumed, Maryland, 992
HEART: See also Arteries, coronary; Cardiovascular System
  Anomalies: See also Ductus arteriosus
  anomalies, Blalock operation for tetralogy of Fallot, [Dodrill] 717-ab
  anomalies, cerebral abscess complicating for tetralogy of Fallot, [Hand] 719-ab
  anomalies, Fallot's tetralogy and Eisenmenger's complex, [Meneses Hoyos] 725—ab
  anomalies, tetralogy of Fallot, surgical treatment, [Murray] 723-ab
  beat, bigeminy or coupled, 615-ab
  beat, premature systoles, use of quinidine, [Katz] ★1029
  beat, voluntary acceleration, 42-E
  block murmur, 969-ab
  clinic opened, Hawaii, 273
  contusion, [Hedinger] 428-ab
  Disease: See also Cardiovascular Disease; Endocarditis; Pericarditis; under Medicolegal Abstracts at end of letter M
  disease, A.M.A. panel discussion on modern management, [DeGraff] ★1025; [Gold] ★1027; [Katz] ★1028; (discussion) 1032
  disease and prostatic surgery, [Kretschmer & Butler] ★441
  disease, cause of sudden death in a well; 732
  disease, congenital, murmurs in 1034-ab
  disease, coronary, value of testosterone, (discussion) 1031—ab
  disease, experiment in rehabilitation (correction) 274
  disease, honey in diet, 433
  Disease (Hypertensive): See Blood Pressure, High
  disease, patients rehabilitated, 701
  disease, place of hypnotics and sedatives in therapy (discussion), 1032-ab
  disease, President Truman urges public support in combating 561-OS
  disease, rehabilitation of tuberculous with, experiment by Altro Work Shops, Inc., 123
  disease (rheumatic) 808
  disease, Rheumatic Heart Clinic for Lawrence County, Pa., 786
  disease (rheumatic), treatment, [Barnes] 304-ab
  disease, survey of employees with, N. Y. C., 273
  disease, treatment, glycosides of digitalis in, [Barnes] 303-ab

HEART—Continued
disease, value of aminophylline in, (discussion) *1027
disease, value of papaverine in, (discussion) 1032-ab
disease (valvular, decompensated), low sodium diet in, [Barnes] 303-ab
disease, vitamin E treatment, (discussion) 1031-ab
disease, when can oxygen help patients with, *(discussion)* 1026-ab
electrocardiogram, in psychosomatic phenomena, [Burch & Ray] *1011
electrocardiographic changes in electric convulsions, [Altschule] 1067-ab
electrocardiography, electrolyte changes in diabetic acidosis, [Martin] 493-ab
Enlargement: See Heart hypertrophy
Failure: See Heart insufficiency
failure (congestive), sodium penicillin in, [Barnes] 304-ab
foreign bodies in, removal, [Harken] 720-ab
hemorrhage, control by gelatin sponge, [Jenkins] 898-ab
hypertrophy of right ventricle, cor pulmonale, 41-E
in drowning in fresh water vs. sea water, 697-E
Infarction: See Myocardium
Institute bill, Senators testify for, 108—OS; 1102—OS
insufficiency, digitalis in congestive failure, [LaDue] 949-ab
insufficiency, recent advances in treatment, [Barnes] *299
insufficiency (rheumatic), failure in children, 290
insufficiency, right-sided heart failure, 809
Inter-American Cardiological Congress, 568
Irritable: See Asthenia, neurocirculatory
Missouri Heart Association organized, 566
murmur, innocent mitral systolic murmurs, 979-ab
Muscle: See Myocarditis; Myocardium
National Cardiology Congress, 841
National Heart Committee organized, 995
National Heart Institute, 108—OS; 1102—OS
National Heart Week Program, 111
Neurosis: See Asthenia, neurocirculatory
Output: See also Blood Circulation
output, in psychosomatic phenomena, [Burch & Ray] *1011
Rate: *See Tachycardia*
research center, U. S. government approves plans for, 477-OS
rheumatoid arthritis and, 1061
Rhythm: See Arrhythmia
rupture of interventricular septum, 517-ab
Size: See also Heart hypertrophy
size in neurocirculatory asthenia, [Carlotti] 60-ab
stimulant; nikethamide (coramine) (discussion) 1031-ab
Valves: See Mitral Valve
Valvular Disease: See Heart disease, valvular
Ventricular Fibrillation: See Ventricular *Fibrillation*
HEAT: See also Burns; Cooking; Fever; Tropics
cradle, Christensen 175
reactions of soldiers to, test, 631
Therapeutic use: See also Baker; Diathermy; Fever, therapeutic; Infra-Red Rays
therapeutic use, [Horvath] *605
sedation, 772-E
Production: See Metabolism, basal
HEBREW Medical Journal: See Journals
HEBREWS: See Jews
HEKTOEN Institute for Medical Research, (appointments), 194; (grant for research on amino acid therapy) 338
Lecture: See Lectures
HELLER, JOHN R., heads National Cancer Institute, 1102-OS
HEMAGGLUTININS: See Agglutinins
HEMANGIOBLASTOMA, of nervous system, [Naffziger & Boldrey] *101
HEMANGIOMA in children, [Dargeon] *465
Sturge-Weber-Dimitri's Disease, [Lichtenstein] 134-ab
HEMATOLOGY: See Blood
Research *Foundation*: See *Foundations*
HEMATURIA, severe, in sickle cell disease, [Abel & Brown] *621
HEMOCONCENTRATION: See Blood concentration
HEMOGLOBIN: See also Methemoglobinemia
in arterial blood during water diuresis, [Govaerts] 804-ab
solutions for intravenous infusion, [Hamilton] 718—ab
HEMOLYSIS: See also Anemia, hemolytic
Disease Involving, in Newborn: See Erythroblastosis, Fetal
intravascular, renal damage following, [Burwell] 352-ab
Rh antigen C^w and [Lawler] 138-ab
HEMOPAK Absorbable Gauze Packing Strip; Cotton Pad, N. N. R., *(Johnson & Johnson)* 1099
Johnson & Johnson, oxidized cellulose, N.N.R., *(description)* 829
HEMOPHILUS Influenzae: See Influenza bacillus
HEMORRHAGE: See also Hematuria; Purpura; under names of diseases and organs affected
capillary fragility and retinal hemorrhage, [Shanno] 948-ab
control by gelatin sponge cuff and chromic gut sheath, [Jenkins] 798-ab
control by gelatin sponge in hemorrhage from heart [Jenkins] 898-ab
control, massive use of oxidized gauze, [Stewart & Clanos] *932
control, oxidized cellulose, N. N. R., (description) 829; *(Johnson & Johnson)* 829
dicumarol poisoning, [Draper] *171
Menstrual: See Menstruation
Prothrombin relationship: See Blood coagulation; Blood prothrombin
Subarachnoid: See Meninges, hemorrhage
tendency in Banti's syndrome, [Tocantins] *616
HEMORRHOIDS and occupational strain, [Zager] 952—ab
HEMOTHERAPY: See also Blood Transfusion; *Serum Therapy*
autohemic therapy and penicillin in phlebitis, [Hussenstein] 803-ab
HEPARIN dosage, [Barnes] 303—ab
heparinemia in blood dyscrasias, [Barnard] 573-C
treatment in Pitkin menstruum in thromboembolic disease, [Loewe] 125-ab
treatment in Pitkin menstruum, in venous thrombosis, [Evans] 1070-ab
treatment in Pitkin menstruum not given intravenously, 303; (correction) 568
treatment in Pitkin menstruum subcutaneously [Greene] 797-ab
treatment of brain hemorrhage, [Haden] 309—ab
treatment of subacute bacterial endocarditis, [Barnes] 304-ab
treatment of venous thrombosis, [Loewe] 503-ab
treatment plus dicumarol in coronary thrombosis, [Barnes] 303—ab; (correction) 568
HEPATIC: See Liver
HEPATITIS: See Liver inflammation
HEPATOMEGALY: See Liver hypertrophy
HEREDITY: See also Genetics
alcoholism and, 819
in essential hypertension, 254-E
HERBAL, Great (Chinese), Army Medical Library acquires, 783
HERNIA: See also Lungs; Spine, intervertebral disk
diaphragmatic, relation to anemia, [Ritchey] 841-ab
diaphragmatic traumatic, [Vin Zant] 424-ab
HEROES: See also World War II, Heroes
Barlow (C. H.) infected himself with schistosomiasis to find cure, 1056
Volunteers to Aid Research: See Research
HEROIN: See Morphine, diacetyl
HERPES: See also Dermatitis herpetiformis
of penis, 72
simplex, treatment; smallpox vaccine, autoserum therapy, x-rays 908
zoster, treatment, 591
HESS (Elmer) Prize: See Prizes
HEXACHLOROPHENE, Council report, 471
HIDRADENOMAS of vulva, analogous breast lesions, [Cunningham] 582-ab
HIGH Blood Pressure: See Blood Pressure, High
Frequency: See Diathermy
HILDRETH, HAROLD M., new chief of clinical psychology, 192
HILL-BURTON Hospital Survey and Construction Act (deadlines for building, W. Va.) 567; (report on results by USPHS), 632; (Joint Committee report) 779-OS
HINGSON, R. A., award by Junior Chamber of Commerce of U. S., 632
HINSHAW, WILLIAM WADE, cancer research award in memory of announced, 883-OS
HIP: See Femur; Pelvis
HIRSCHSPRUNG'S Disease: See Colon, megacolon
HISTAMINE, Antihistamine: See also Diphen*hydramine* Hydrochloride (benadryl)
antihistamine, synthetic, research on, Paris, 841
antihistamine treatment of allergic rhinitis, [Criep] *601
antihistamine treatment of migraine, [Biro] 586-ab
antihistamine treatment of trigeminal neuralgia, [Horton & Brennan] *870
antihistamines, 592
[Biro] 586-ab
sclerosis, 730
er, [Bockus] 299-ab
Tissues
vity, [Furcolow] 721-ab; [Welch] 897-ab
HISTOPLASMOSIS, [Miller] 715—ab
fatal, pulmonary manifestations [Holt] 897—ab
tuberculin test and, 474-E
HISTORY of Medicine: See Medicine
HISTRIMATE tablets for verrucae, [O'Connor] 1006-ab
HITCHCOCK Lectures: See Lectures
HOBBIES: See Physicians, avocations
HODGKIN'S DISEASE, complicating pregnancy, 116
diagnosis (early), [Craver] *214
in children, [Dargeon] *464
treatment, [Craver] *214
treatment, nitrogen mustards, [Rhoads] 307-ab; [Wintrobe] 350-ab
treatment, nitrogen mustards vs. urethane, [Jacobson] *95
HOGS: See also Trichinosis
poliomyelitis virus in, [Francis & others] *1090
stomach extract treatment in ulcerative colitis, [Ehrlich] 60-ab
HOHENSEE, ADOLPHUS, foods manufacturer fined, Ariz., 940
HOLLIS, MARK D., new assistant surgeon general, 193
HOLMES, OLIVER WENDELL, 19-ab; 375-ab
HOLMES Lectures: See Lectures
HOME: See House; Housing
Accidents : See Accidents
HOMICIDE: See Murder
HONEY in diet in heart disease, 433
HONORABLE DISCHARGE: See World War II, medical officers released
HOOKWORM Infection: See Ancylostomiasis
HORMONES: See also Endocrinology
cancer in relation to [Thompson] *318
effects of vernix caseosa, [Lajos] 68-ab
metabolism in target organs, [Luckhardt] *(correction)* 30
research, $3,600 grant from Research Corporation, N. J. 634
Sex: See Androgens; Estrogenic Substances; Gonadotropins; Sex hormones
HORSE, poliomyelitis virus in, [Francis & others] *1090
HOSPITALIZATION Insurance: See Hospitals, expense insurance; Medical Service Plans
HOSPITALS: *See also Clinics*
A. M. A. Council on: See American Medical Association
A. M. A. resolutions on practice of medicine by, 184; 260
A. M. A. resolutions on exploiting professional medical services by, 189; 260
A. M. A. 10-point national health program, 262
Anderson, for Cancer Research, 1057
Approved: See Hospitals registered and approved
Army, for neuropsychiatric cases surveyed, Germany, 47
Army, graduate education for medical officers in American zones of occupation, (Joint Committee report) 779-OS
Baylor, fund oversubscribed, Tex., 786
Blue Cross Plan See under Hospitals, expense insurance
British Red Cross Society to establish, in India, 417
Care: See Hospitals, service
Center: See also Medical Center
center might take entire naval observatory tract, D. C., 476
Childrens Memorial, dedicated, Nebr., 1106
competition with private practice, report of special committee to study, 475
denominational, future, London, 199
Expense Insurance: See also Medical Service Plans
expense insurance, Hawley to head Blue Cross and Blue Shield plans, 270—OS
expense insurance, 10-point national health program of A. M. A., 262
Facilities: See Hospitals, service
George Washington University, opened to public, 936—OS; 1055
Government: See also Hospitals, army; Hos*pitals, veterans*
government (108), sold by U. S. government, 191-OS
grants to states practicing racial discrimination, rider to bill rejected, 1052-OS
Greater New York Fund, report, 888
Group Hospitalization: See Hospitals, expense insurance
in Puerto Rico, [Irons] *981; *982
Insurance: See Hospitals, expense insurance
Interns; Internships: See Interns and Internships
Massachusetts General, granted funds for cancer research, 785
Medical Service Plans: See Hospitals, expense insurance; Medical Service Plans
Memorial, Du Page County, Elmhurst, 837
municipal, improvement program, Puerto Rico, 787
Naval, Dublin, Ga., 938
number of J. A. M. A. postponed, 1050-E
nursery for newborn, [Koch & others] *219
nursery for premature baby, South Charleston, W. Va., 49; 636
nursery, outbreaks among newborn in, (Joint Committee report), 780-OS
nursery, Stanford opens, Calif., 837
Nurses: See Nurses
Polish, Unitarian Service Committee opens, 788
Presbyterian, Charles B. Goodspeed Memorial *Fund, Chicago 1105*

HOSPITALS—Continued
  psychiatric, are financially starved, Dr. Overholser *charges* 270-OS
  psychiatric, BCG vaccination of inmates, [Rosenthal & others] ★74
  psychiatric, recommended, W. Va., 49
  psychiatric, St. Elizabeths, mental patients, 936-OS
  Record: See Medical Record Librarians
  registered and approved, practice of pathology by, A. M. A. resolutions on regulation, 190; 260
  registration and approval for internship and residencies, 834-OS
  rehabilitation clinic, at Beth Israel, N. Y. C., 49
  research, in Bethesda to include beds for patients with cancer, 270-OS
  Residents; Residencies: See Residents and Residencies
  Roosevelt, construct emergency-accident wing, N. Y. C., 566
  Royal Melbourne, centenary, 708
  Senn (Nicholas) Memorial, Wis., 786
  Service: See also Medical Service Plans
  service for unified armed forces, Hawley Committee studies improvement 191—OS; 271
  service, (free), N. Y., 481
  Service Plans: See Hospitals, expense insurance
  Survey and Construction Act: See Hill-Burton Act
  Tuberculosis: See Tuberculosis hospitals
  United Hospital Fund exceeds goal, 888
  Veterans: See *also* Veterans, medical care
  veterans, construction at new high, 1101
  veterans, contracts for, *192; 9*91
  veterans, Little Rock, Ark., 784
  veterans needs for, A. M. A. 10-point program 263
  veterans, Negro, authorized by House of Representatives, 404-OS
  veterans, news, 784
  veterans, patients with nonservice-connected disabilities, 939
  veterans, 2,035 hospitalized, 193
HOUSE dust allergens, 289; [Rimington] 503—ab
HOUSING, A. M. A. 10-point national health program, 261
HOUSSAY, B., lecture at Paris Faculty of Medicine, 945
Hr FACTOR sensitization in transfusions, 180-E
HUGGINS Lecture: See Lectures
HUHNER test, contraception masking sterility and infertility, [Rubin] 490-C
HUIZENGA, LEE S., China honors missionary doctor, 413
HUMAN Milk See Milk, breast
HUMERUS, fractures (supracondylar), 512
HUNGARY, medical week in, 483
HUNGER: Se also Appetite; *Starvation*
  Edema: See Edema
  foods for emergencies, [Wilder & Keys] ★322; 330-E
  world, and wheat, 330-E
HUNTER Memorial Library, 339
HYDRARTHROSIS, cyclic, periodic disease, [Reimann] ★244
HYDRATION: See also Dehydration
  pitressin, test in diagnosis of epilepsy, [Cappon] 67—ab; 652—ab
  treatment of parotid abscess by [Furstenberg] ★2
HYDRAULIC lift for patients with partial leg paralysis, [Wesselhoeft] 56-C
HYDROCARBONS, aromatic, intoxication by, Belgium, 842
HYDROLYSATES: See Protein
HYDRONEPHROSIS with aberrant artery, new operation for, [Stewart] 210—ab
HYDROPHOBIA: See Rabies
HYDROPS Fetalis: See Eyrthroblastosis, Fetal
HYDROQUINONE, ocular pigmentation in workers making [Anderson] 1005-ab
HYDROTACHYSTEROL, *di*: See Dihydrotachy*sterol*
HYDROXYCOUMARIN, Methylene Bis: See Dicumarol
HYDROXYETHYLAPOCUPREINE, antimalarial agents, [Chen] 208-ab
HYGEIA: See American Medical Association
HYGIENE: See also Health; Sanitation
  Brazilian Society of, 55
  Congress on Hygiene of Schools and Universities, Paris, 278
  Mental: See Mental Hygiene
  public, International Office, Monthly Bulletin, 50
  Social: See Social hygiene
HYMEN, intact, danger of rupture from tampax? 908
HYPEREMIA, titration test of fetal death, [Zondek & others] ★965; (correction) 1107
HYPERPARATHYROIDISM: See Parathyroid
HYPERPNEA: See Respiration, hyperventilation
HYPERPYREXIA: See Fever, high
HYPERSENSITIVITY: See Anaphylaxis and Allergy
HYPERTENSION: See Blood Pressure; High
HYPERTHERM: See Fever, therapeutic
HYPERTHYROIDISM, erythrocytes in, basophil stippling in, [N.zet] 585—ab
  treatment, indications for thyroidectomy, [Crile] 353-ab
  treatment, methylthiouracil, [Frisk] 724-ab
  treatment, propylthiouracil in, [McCullagh] 844-ab
HYPERTROPHY: See Breast; Heart; Liver; Prostate; Pylorus stenosis; Splenomegaly
HYPERVENTILATION: See Respiration
HYPNOTICS, place in cardiac therapy, (discussion) 1032-ab
HYPO, removal of cutaneous stains [Tuckerman] 643-C
HYPOBAROTHY, airsickness and earache, 288
HYPOCALCEMIA: See Blood calcium
HYPODERMIC syringe, transmitted epidemic of [Capps & others] ★819
ee Genitals
Blood sugar
Gonads, *deficiency*
uitary
See Pituitary
e also Cretinism
and Treatment (film
ee Vitamins *deficiencies*
HYSTERIA, convulsions, differentiating from epilepsy by pitressin *hydration test,* [Cappon] 67-ab

I

ICTERUS: See Jaundice
IDIOCY, mongolian, differentiating from cretinism, 146
  mongolian, tonsillectomy in children with, 216
IDIOSYNCRASY: See Anaphylaxis *and Allergy*
ILEOSTOMY, skin irritation from 732
ILLINOIS, Governor's report on using *prisoners* in medical experiments, ★457
  State Medical Journal not member of Cooperative Medical Advertising Bureau, 399; 400—E
  University of: See University
ILLNESS: See Disease
IMMIGRANTS: See also Emigrants
  physical examination, A.M.A. resolutions on, 190; 260
  Physicians: See Physicians, foreign
IMMUNITY: See Antibodies; Antigens; under names of specific as Frambesia
IMMUNIZATION: See also Vaccination; under names of specific diseases as Diphtheria
  BCG: See Tuberculosis, immunization
  month in Michigan: February, 412
  obtained in medical services to well children, [Hardy] ★24
  precautions before going to Africa, 511
  precautions before going to Latin America, 592
  precautions before going to tropics, 657
IMMUNOLOGY, radioactive virus, 473—E
IMPOSTORS: See Malingering
IMPOTENCE, treatment, hormones, 730
IMPREGNATION: See also Coitus; Pregnancy
  artificial, International Congress of (1st), 705
  period of insemination after ovulation, 144
  Preventing: See Contraception
INANITION: See Nutrition deficiency; Starvation
INCOME Tax: See Tax
INDEXING: See Subject Headings
INDIA, British Red Cross Society *to establish* hospitals in, 417
INDIANAPOLIS Medical Society 100th birthday, 702
INDIANS, *Mexican, nutrition* and endocrinology, [Miranda] ★542
INDUSTRIAL ACCIDENTS: See also Workmen's Compensation
  causalgia after minor injury, [Pernworth] 952—ab
  chlorine accident in Brooklyn, [Chasis] 900—ab
  diabetes mellitus, [Louyot] 68—ab
  disabling work injuries, 883—OS
  evaluation of disability, [Hellebrandt] 1113—ab
  interpretation and per cent of disabilities allowed for various types of injury, 849
  occupational strain and rectal conditions, [Zager] 952—ab
  statistics (annual) by National Safety Council, 568
INDUSTRIAL DERMATOSES, penicillin contact, 730
  streptomycin contact dermatitis, [Strauss] 64—ab; [Rauchwerger & others] ★614
INDUSTRIAL *DISEASES*: See also Industrial Dermatoses; Workmen's Compensation
  alcoholism as occupational disease of seamen, 900—ab
  allergens of mill dust, [Jimenez-Diaz] 949—ab
  anemia from welding fumes, 658
  aromatic hydrocarbons intoxication, Belgium, 842
  bagasse disease of lungs, [Gerstl] 498—ab; [Le Mone] 650—ab; 1050—E
  bagasse, pathogenicity, [Gerstl] 498—ab
  carbon tetrachloride poisoning, fatal renal disease, [Stobbe] 721—ab
INDUSTRIAL DISEASES—Continued
  cyanide poisoning, (reply) [Hamblin] 1074
  epidemic of oil pustules, Belgium, 842
  eye injury from sulfur dioxide, [Grant] 1005—ab
  gases and vapors; poisoning *by volatile solvents*, [Clinton] 1070—ab
  lead in urine, determined by rapid screening test, [Cholak] 1069—ab
  lead poisoning, use of BAL, (correction) 50
  leptospiral infections, survey, [Molner & others] ★814
  nephritis in textile workers, [Platt] 583—ab
  Pneumonoconiosis: See Pneumonoconiosis
  refrigerant gases, toxicity, 956
  sulfadiazine poisoning, [Friedman] 1005—ab
INDUSTRIAL *HEALTH* clinics, 888
  conference on alcoholism (1st), 565
  employees with heart disease, survey N. Y. C., 273
  group morale and duration of medical incapacity *in industry*, [Brodman] 846—ab
  industrialization increase, Puerto Rico, medical mission report, [Irons] ★980
  influenza vaccine, use again this year? 214
  medical relations in business and industry, 995
  medicine, Belgian Society of, 842
  medicine, graduate course, N. Y. C., 635
  medicine, National Institute, Spain, 489
  noise and hearing, [Machle] 899—ab
  Occupational Health Problems (film review), 1111
  plan, Chicago, 122
  psychiatric fellowship, 703
  San Francisco Municipal Employees Health Service System, [Diepenbrock] ★559
  veteran's placement committee, Conn., 785
INDUSTRIAL INJURIES: See Industrial Acci*dents*
INDUSTRIAL POISONING: See Industrial *Dermatoses*; Industrial Diseases
INEBRIETY: See Alcoholism
INFANTILE PARALYSIS: See Poliomyelitis
INFANTS: See also Children; Infants, Newborn; Pediatrics; under names of specific diseases
  anemia (megaloblastic) in, [Aldrich] 799—ab
  aneurysms of coronary arteries in, [Pickard] 719—ab
  atrophy, desoxycorticosterone in, [Forssell] 286—ab
  cancer in, [Dargeon] ★459
  cranial sutures, premature closure, [Simmons] 581—ab
  diabetes mellitus in, [Schwartzman] 897—ab
  endocyme fetus in, [Maxwell] 504—ab
  feeding (breast), Cornelian Corner, 881—E
  feeding (breast), fatal staphylococcic poisoning in maternal mastitis, [Selberg] 67—ab
  feeding (breast), in erythroblastosis fetalis, [Cathie] 354—ab
  feeding, especially weaning problem, [Spock] ★811
  feeding, Libby's Strained and Homogenized Apricot-Farina, 690
  feeding, mediastinitis from ingesting glass, [Steele] ★554
  fluoroscopy of, 1073
  gastrointestinal disorders, streptomycin for, [Cimino] 428—ab
  Know Your Baby (film review), 1063
  methemoglobinemia in, from nitrates in water, [*Stafford*] *209*—ab
  mortality, Bolivia, 417
  mortality, France, 945
  mortality from premature birth, reducing, [Koch & others] ★217
  mortality in U. S. for 1945, 492
  mortality of newborn and morbidity with *continuous* caudal analgesia, [Hingson & others] ★221
  penicillin orally in, [Husson] *719*—ab
  premature baby nursery, South Charleston, W. Va., 49
  premature, establish center, Colo., 785
  premature, establish unit for, London, 893
  premature, mortality and morbidity with continuous caudal analgesia, [Hingson & others] ★221
  premature, reducing mortality, [Koch & others] ★217
  suffocation by milk feeds or vomitus, 1061
  welfare, A.M.A. 10-point national health program, 262
INFANTS, NEWBORN: See also Fetus
  Asphyxia *in: See Asphyxia*
  BCG vaccination, [Rosenthal & others] ★73
  Birth Rate: See Vital Statistics
  diarrhea, [Clifford] 952—ab
  Erythroblastosis of: See Erythroblastosis, Fetal
  hormone effects of vernix caseosa, [Lajos] 68—ab
  inclusion bodies in organs of, [Cappell] 724—ab
  Mortality: See Infants, mortality
  Nursery: See Hospitals, nursery
  Ophthalmia in: See Conjunctivitis, infectious acute
  outbreaks in; in hospitals (Joint Committee report), 780—OS
  Stillborn: See Stillbirth

INFANTS, NEWBORN—Continued
  toxoplasmosis (congenital), [Kean & Grocott] *101
  vitamin B complex in, [Hamil] 191—ab
INFARCTION: See Lungs; Myocardium
INFECTION: See also Staphylococcus; Streptococcus; under specific organs and regions
  bacterial, streptomycin for, [Kane] 61—ab
  Focal: See Tonsils, infected
  late primary, and BCG vaccination, [Malmros] 421—ab
  of Blood See Bacteremia
  surgical, streptomycin for, [Pulaski] 950—ab
INFECTIOUS DISEASE: See also Epidemics; under names of specific infectious diseases as Measles
  blood coagulation in children with, [Ströder] 428—ab
  control, 932—ab
  Preventing Spread of: See Immunization; Vaccination
INFECTIOUS HEPATITIS: See Liver inflammation
INFECTIOUS MONONUCLEOSIS: See Mononucleosis, Infectious
INFERTILITY: See Sterility
INFLAMMATION: See under names of specific diseases *and organs as* Bladder; Phlebitis; etc.
INFLUENZA A and B, serologic tests for diagnosis, [Smadel] *1080
  A and virus X, 884
  diagnosis, serologic, [Hoyle] 903—ab
  immunization with virus vaccine: inadequate protection, [Van Ravenswaay] *135
  immunized population, influenza A in, [Sigel & others] *437
  meningitis, intrathecal therapy not required: use *of serum, streptomycin, sulfonamides,* [Hoyne & Brown] *597
  of Parrots: See Psittacosis
  treatment antibiotics, [Rivers] 292—ab; [Keefer] 321—ab
  treatment, polymyxin, [Schoenbach & others] *1096
  vaccine, use again this year? 214
  vaccines, status (Council discusses), 692
  virus, intranasal inactive, [Quilligan] 579—ab
INFRARED RAYS, California Dri-Aire Lamp not acceptable, 691
INFUSIONS: See Injections
INHALATION of Dust: See Pneumoconiosis
  therapy in respiratory disease [Bryson] 581—ab
INJECTIONS: See also under names of specific substances
  Hypodermic: See also Sulfadiazine
  hypodermic, syringe-transmitted epidemic of infectious hepatitis, [Capps & others] *819
  Intraspinal: See Anesthesia, spinal
  Intravenous: See also Blood Transfusion; Varicose Veins
  intravenous and jejunal, of amino acid in *surgical patients, [Stewart & others]* *1017
  intravenous, hemoglobin solutions for, [Hamilton] 718—ab
  intravenous, pulmonary and cerebral fat embolism after, [Lichtenstein & Sewall] *827
  intravenous, syndrome of "speed shock," [Hyman] 895—C
  Subcutaneous: See Injections, hypodermic
INJURIES: See Accidents; Burns; Trauma; Wounds; under specific organ or region
  Industrial: See Industrial Accidents
INOCULATION: See Immunization
INSANE Asylums: See Hospitals, psychiatric
INSANITY: See Dementia Precox; Mental Disorders
INSECTICIDES, alkyl dinitrophenols, [Spencer] 1069—ab
  DDT: See DDT
  parathion, 471
INSECTS, poliomyelitis virus in, [Francis & others] *1091
INSEMINATION: See *Impregnation*
  Preventing: See Contraception
INSTITUTE: See also American Institute; Hektoen Institute; National Heart Institute; Societies and Other Organizations at end of letter S
  for Scientific Investigation, Buenos Aires, 794
  of Child Psychiatry, Conn., 785
INSTITUTIONS: See Hospitals; Schools
INSTRUCTION: See Education, Medical; Schools; University
INSTRUMENTS: See Apparatus; Medical Supplies; Needles; Stethoscopes
  Musical: See Wind Instruments
INSULAR Tissue: See Pancreas, Islands of Langerhans
INSURANCE: See also Medicolegal Abstracts at end of letter M
  Health: See Insurance, sickness
  Hospitalization: See Hospitals, expense insurance
  Life: See Metropolitan Life Insurance Co.
  Life Insurance Medical Research Fund: See Foundations
  Medical Society Medical Service Plan: See Medical Service Plans
INSURANCE—Continued
  Sickness: See also Hospitals, expense in*surance; Medical Service Plans*
  Sickness, Beveridge Plan: See National Health Service Act
  sickness compulsory, National Health Assembly, Washington, D. C., May 1-4, 694—E; 883—OS
  Sickness, National Health Service Act; Beve*ridge Plan: See National Health Service* Act (England)
  Sickness, San Francisco Municipal Employees Health Service System, [Diepenbrock] *559
  sickness, in Australia, [Hermann] 202—C
  sickness, President's message to Congress, 177—E
  sickness, study by A.M.A. Council, 188
  Sickness, Wagner-Murray-Dingell Bill: See Wagner
INTELLIGENCE: See Mental Defectives
INTER-AMERICAN: See also Latin American; Pan American
  Cardiological Congress, 568
INTERCOURSE, *Sexual: See Coitus*
INTERN: See Interns and Internships
INTERNAL MEDICINE: See Internists
INTERNAL SECRETIONS, Glands of: See Endocrinology
INTERNATIONAL: See also United Nations; list of Societies at end of letter S
  Committee on Mental Hygiene grant to study effect of war on children, 991
  Conference on Rheumatism, 995
  Congress for Clinical Biology (1st), Paris, Nov. 20-23, 1947, 187
  Congress of Leprosy, 833—OS
  Congress of Physiology and Pathology of Animal Reproduction and Artificial Insemination, (1st), 705
  Congress of Psychiatry, Paris, 1950, 187
  Congress on Mental Health, 788
  Congress on *Obstetrics and Gynecology,* N. Y., 1058
  Congress on Surgical Films (1st), Paris, 945
  Congresses on Tropical Medicine and Malaria, 4th, 833—OS; 1107
  Foundation: See Foundations
  Health Organization: See World Health *Organization*
  Medical Press, 833—OS
  medical school, propose A.M.A. and W.H.O. establish, [Colvin] 573—C; [Smyth] 1000—C
  Office of Public Hygiene Monthly Bulletin, 50
  Poliomyelitis Conference (1st), (A.M.A. representatives to) 475; (program) 483
  Society of Pathologists, established, 340
  Spanish-Speaking Association of Physicians *meeting, 888*
  Union Against Venereal Disease, France, 53
  Union of Students, clinical congress, 942
INTERNISTS: Congress of German Internists, 201; 1106
INTERNS AND INTERNSHIPS: See also Residents and Residencies
  A.M.A. resolution on, 188; 258
  distribution, A.M.A. resolutions on, 189; 258
  Hospitals registered for: See Hospitals, registered
  placement (uniform), A.M.A. Council plan, 713
  training, A.M.A. resolutions on approval of, 189
INTERVERTEBRAL Disk: See Spine
INTESTINES: See also Cecum; Colon; Duodenum Feces; Gastrointestinal Tract; Peritoneum; Rectum; etc.
  dilatation (acute) after faulty nutrition, 709
  Disease: See Colitis; Gastroenteritis; Typhoid
  diverticula, surgical removal, [Mahorner] 353—ab
  endometriosis, [Sutler] 503—ab
  Fistula: See Fistula, fecal
  Hernia: See Hernia
  obstruction, possible periodic blockage, 590
  Parasites: See Ancylostomiasis; Balantidiasis
  surgery, preparation and after-care of patient, [Bacon & Rowe] *975
  test to locate tip of Miller-Abbott tube, [McLanahan] *35
  tumors, lipomas, [Tenner] 1006—ab
  tumors, (malignant) [Doub] 136—ab
INTOXICATION: See Alcoholism; Medicolegal Abstracts at end of letter M
INTRAVENOUS MEDICATION: See Injections, intravenous
INVESTIGATORS: See Research
IODINE number of fatty acids, 432
  radioactive, [Thompson] 320—ab
  radioactive, in Graves' disease, [Chapman] 902—ab
  radioiodine, 850
IODOPYRACET injection U.S.P., and tubular excretory capacity, [Josephson] 139—ab
IONIZATION: See Ion Transfer
IONTOPHORESIS: See Ion Transfer
ION TRANSFER, [Horvath] *607
  electrophoresis and protein fractionation, 832—E
IPECAC, syrup of, in paroxysmal auricular tachycardia, 810
IRON, *forms in enriched bread, [Blumberg]* 134—ab
  in animals and in therapy, 642
  therapy in anemia, [Elvehjem] *915
IRRADIATION: See Radiation (cross reference)
ISLANDS of Langerhans: See Pancreas
ISOBORNYL thiocyanoacetate-technical, N.N.R., (description) 1099; (Wyeth) 1099
ISONIPECAINE: See Meperidine
ISOTOPES: See Radioactive Isotopes
ITALIAN Blood and Plasma Bank organized, Turin, 793
  Consulting Office on Genetics, 1st, 793
  Hematologic Association, 54
  Urologic Society, 792
ITCH, Grain: See Acarodermatitis urticarioides
ITCHING: See Eczema; Pruritus
IVY Poisoning: See Rhus

J

JACKSON, LEONA, personal, 990
JACKSON (Roscoe B.) Memorial Laboratory, grant to rebuild at Bar Harbor, 48
JAIL: See Prisoners
J. A. M. A.: See American Medical Association Journal
JAPANESE River Fever: See Tsutsugamushi Disease
JAUNDICE, spirochetal, Weil's disease, leptospiral infections, [Molner & others] *814
JAWS*: See Teeth*
JEJUNUM, amino acid injected into, in surgical patients, [Stewart & others] *1017
JEWS: See also Palestine
  Rh factor in Jewish Communities, 344
JOBS: See Industrial Health
JOHNSTON, EDWARD E., personal, 784
JOINT Committee for Coordination of Medical Activities: See American Medical Association
  Legislative Committee to Study Problem of *Cerebral Palsy,* N. Y., *1056*
JOINTS: See also Arthritis: under names of specific joints as Shoulder
  cancer, [Phemister] *545; *553
  disorders, pain in, methadon for, [Ishmael] 801—ab
  pain, penicillin arthralgia, 732
JOURNALS: See also Library
  ADA Forecast, American Diabetes Association new publication, 274
  Archives Published by A.M.A.: See American Medical Association, journals, special
  Archivos Argentinos de Kinesiologia, new journal, 568
  British, available in U. S. through Grune & *Stratton, 340*
  British Journal of Nutrition, new quarterly, 893
  British Medical Journal, censorship under National Health Service Act, England, 571
  "Cord," for paraplegics, 53
  Hebrew Medical Journal, 413
  Hygeia: See American Medical Association
  Journada Medica, 340
  J. A. M. A.: See American Medical Association Journal
  Journal of Clinical Pathology, new journal, 127
  Journal of Iowa State Medical Society April issue dedicated to Dr. E. MacEwen, 1105
  list of scientific and technical periodicals, Ohio, 994
  Medicine, (Dr. Talbott to edit) 339
  Monthly Bulletin of International Office of Public Hygiene, 50
  New Orleans Medical and Surgical Journal, Dr. P. H. Jones new editor, 785
  New York, Illinois, California and Rhode Island not members of Cooperative Medical Advertising Bureau, 399; 400—E
  Revista de Psiocologia General y Aplicada new Spanish journal, 842
  Revista Panamericana de Medicina y Cirugia del Torax, 340
  This Week in Chicago Medicine, 338
JUDD Lecture: See Lectures
JUNGLE rot or pyoderma, 1010
JURISPRUDENCE, MEDICAL: See Medical Jurisprudence

K

KR, trypanosome vaccine in treatment of cancer, 591
KAADT Diabetic Institute, 1002—MI
KALA-AZAR, 472—E
  exotic diseases, (correction) 483
  treatment, sodium antimonyl tartrate, [Adams] 285—ab
  unusual leukocyte response and prolonged incubation period, [Levy & Hiengst] *81; 110—E
KANSAS, what is osteopathy? 986—E
KAPOSI'S varicelliform eruption, [Ruchman] 716—ab
KECK, EVERETT B., personal, 700
KELLOGG Lecture: See Lectures

KERATITIS, chronic superficial punctate, by Onchocerca volvulus, [Appelmans] 141—ab
  interstitial, penicillin for, [Klauder] 282—ab; ★877
  interstitial, treatment, 215
KERATOCONJUNCTIVITIS, sequelae of conjunctivitis, 145
KERATOSIS, porokeratosis, [Jones] 422—ab
17-KETOSTEROIDS, urinary, in hypogenitalism, [Hurxthal] ★16
"KICKBACKS," 176—E; 476
KIDNEYS: See also Urinary System
  artificial, [Bassett] 576—ab; [Murray] 716—ab
  blood flow, temporary cessation, [Koletsky] 579—ab
  complications from sulfonamide, role of liver, [Kuzma] 1003—ab
  cysts, (peripelvic lymphatic) [Scholl] ★4
  damage after intravascular hemolysis, [Burwell] 352—ab
  decapsulation, [Lowe] 651—ab
  Disease: See also Hydronephrosis
  disease (degenerative), drug therapy, [Ivy] ★909
  disease, fatal in carbon tetrachloride poisoning, [Stobbe] 721—ab
  disease, fatal nephrosis produced by acacia, 557—E
  disease, gelatin nephrosis, [Skinsnes] 353—ab
  disease, research, competition announced for Gibbs prize, 889
  disease, salt-poor human serum albumin in, (Council report) 251
  disease treatment by desiccated kidney substance not indicated, 290
  Glomeruli: See Nephritis, glomerular
  Inflammation: See Nephritis
  necrosis in sickle cell disease, [Abel & Brown] ★624
  ptosis, producing duodenal symptoms, [Van Duzen] 351—ab
  substance, desiccated, no basis for use in kidney diseases, 290
  Surgery: See also Kidneys, decapsulation
  surgery, decapsulation in anuresis, [Pilgerstorfer] 1115—ab
  tuberculosis, oil of chaulmoogra and streptomycin for, [Slotkin] 846—ab
  tuberculosis, streptomycin for, 360
  tubular excretory capacity and diodrast clearance, [Josephson] 139—ab
  tubular reabsorption of inorganic sulfate, 1101—E
  tubulo-vascular syndrome, 918—ab
  tumors, sickle cell disease with severe hamturia simulating, [Abel & Brown] ★624
  tumors, Wilms's, in adult, [Esersky] 845—ab
KILLED in Action": See World War II, Heroes
ILNER, T. P., British lecturer abroad, 792
NEE: See Patella
OBER Lecture: See Lectures
OCH, FRED, death, 480
KOESSLER Fellowship: See Fellowships
KOREA, medical meeting in, 120; 409; 835; 1103
KOROSEAL, dermatitis patch testing, 850
KRETCHMER Lecture: See Lectures
KUSSMAUL, ADOLPH, his father was a physician, 521—ab

L

LABELING protein preparations, [Cherkin] 795—C
LABOR: See also Abortion; Cesarean Section; Obstetrics; Pregnancy; Puerperium
  A.M.A. 10-point national health program, 262
  Anesthesia in: See Anesthesia
  birth by rectum in abdominal pregnancy, [Brown] 502—ab
  Complications: See Eclampsia
  oxygen administered to mother before, to prevent asphyxia in newborn, [Bushnell] 1000—C
  induction, 1117
  Premature: See Infants, premature
  prolonged, prophylactic therapy in, 145
  women who continue to bleed post partum, 290
LABORATORIES approved for blood tests, Colo., 1105
  course on parasitic diseases, 886
  Jackson (Roscoe B.) Memorial, grant to rebuild at Bar Harbor, 48
  of U. S. Bureau of Entomology and Plant Quarantine receives distinguished service award, 336
  Sedgwick Laboratories of Sanitary Science at Massachusetts Institute of Technology, 703
  virus diagnostic, and practitioner, [Smadel] ★1079
  virus research, at U. of Calif., 122
LACTALBUMIN superior to carein in nutritive value, 558—E
LACTATION: See also Milk, human
  galactorrhea, 657
LACTOBACILLUS casei factor (synthetic): See Acid, folic
LACTOFLAVIN: See Riboflavin
LAME: See Crippled
LAMPS: See Infra-Red Rays; Sunlamps; Ultraviolet Rays
  Electric Lamp Baker: See Baker
LANATOSIDE C, ventricular fibrillation abolished by electric shock, [Greene] 279—C
LANGERHANS Islands: See Pancreas
LANGUAGE, college president places English first, 256—E
  teaching children to speak 2 languages at once? 1074
LARYNGITIS, acute stenotic, in children, [Arnesen] 505—ab
  Tuberculous: See Larynx tuberculosis
LARYNGOSCOPY, anesthesia for, [Lorhan] 716—ab
LARYNGOTRACHEOBRONCHITIS in children, [Arnesen] 505—ab
LARYNX: See also Laryngitis
  paralysis, cancer causing, [Hassin] 134—ab
  tuberculosis, streptomycin for, [Vergelin] 506—ab; 841
LATIN AMERICA: See also Inter-American
  precautions before going to, 592
LAWS AND LEGISLATION, A.M.A. Bureau of Legal Medicine and Legislation: See American Medical Association
  clandestine sale of drugs, Brazil, 201
  federal and state, (weekly summary) 119; 270; 334; 408; 477; 562; 630; 698; 782; 883; 1052; 1102
  French, on autopsies, 488
  Fulbright-Taft Bill: See Taft
  G. I. Bill: See G. I. Bill
  Hill-Burton Act: See Hill-Burton Act
  new law for Argentine universities, 793
  Taft-Smith-Ball-Donnell Medical Care Bill: See Taft
  U. S. Department of Health, Education and Security (S. 140 or Fulbright-Taft Bill): See Taft
  Violation of: See Medicolegal Abstracts at end of letter M
  Wagner-Murray-Dingell Bill: See Wagner
LEAD in urine, rapid screening test for, [Cholak] 1069—ab
  poisoning, from storage battery casings, family outbreak, [Spizer] 800—ab
  poisoning, BAL in, (correction) 50
LEAGUE of Nations: See United Nations
LECTURERS, British, abroad, sent by British Medical Association, 792
LECTURES: See also under Book Notices at end of letter B
  Bacon (Charles Sumner), 837
  Bardeen memorial, 195
  Cooper Union Forum, 482
  Crane (A. W.), 481
  Cutter, on preventive medicine, 785
  Davis (D. J.), 1055
  Emmerling (Karl) Memorial, 635
  Fenger, 48
  Graves (Stuart) (1st), 565; 940
  Grunow (Lois) memorial clinic, 480
  Harvey (3rd), 49; (5th), 412
  Hektoen (Ludvig) (24th), 634
  Hitchcock, 122
  Holmes (Rudolph Wieser and Maria Baxter), 122
  Huggins (R. R.) memorial, 123
  Judd (E. Starr) lecture in surgery, 838
  Kellogg Medical, 411
  Kober, nation urged to match total war with total medicine in, 988—OS
  Kretschmer (Edwin R.) Memorial, 940
  New York Academy, for laymen, 123
  McArthur (Lewis Linn), 480
  Matas lectureship established, 123
  Phi Beta Pi, 635
  Phi Lambda Kappa, 941
  Porter, 940
  Seelig (Major G.) lectureship established, 1056
  Smith (Reginald Knight), 565
  Stanford University, medical, popular, 940
  Starin (William A.) 994
  Stewart (R. W.) Memorial, 888
  Stoneburner (Lewis T., III) Memorial, 273
  Strausberg (Samuel) Memorial (1st), 339
  University of Minnesota, 338
  Utah Medical Foundation, 339
  Wyckoff, (John), 888
  Zeit (Robert Frederick) Memorial, 1055
LEG: See Legs
LEGAL MEDICINE: See Laws and Legislation; Medical Jurisprudence: Medicolegal Abstracts at end of letter M
LEGION OF MERIT: See World War II, Heroes
LEGISLATION: See Laws and Legislation
  A.M.A. Bureau of: See American Medical Association
LEGS: See also Extremities; Femur; Foot; Tibia
  Amputation: See Amputation
  Artificial: .See Limbs, artificial
  edema, treatment; phlebitis, 144
  paralysis, hydraulic lift for patients with, [Wesselhoeft] 56—C
LEGUMES, nutritive value, [Maynard & Nelson] ★1045
LEIPZIG University: See University of Leipzig
LEISHMANIASIS: See Kala-azar
LENS, Crystalline, Opacity: See Cataract
LENSES, Contact or Tinted: See Glasses
LEPROSY, colony, Puerto Rico, [Irons] ★982
  International Leprosy Congress, 705; (A.M.A. representative: Mr. Creer) 833—OS
  treatment, diasone and promin, 572
  treatment, penicillin, tyrothricin, chaulmoogra oil, etc., 830—E
  treatment, promin, diasone, promizole and streptomycin, [Faget & Erickson] ★451; 830—E
LEPTOSPIRAE, sensitivity to penicillin and streptomycin, [Wylie] 138—ab
LEPTOSPIRA infections, survey, [Molner & others] ★814
LETTERMAN JONATHAN, exhibit on, 410
LEUKEMIA, acute, treatment by transfusion, 488
  cells, zinc content, 731
  cerebral center which regulates blood formation, 955
  diagnosis (early), value, [Craver] ★244
  etiology, Italian Hematologic Association discuss, 54
  in children, [Dargeon] ★464
  monocytic, adrenal hemorrhage in, [Lauckner] 723—ab
  monocytic, appearing as prostatism, [Lubin] 135—ab
  myelogenous, radioactive phosphorus for, [Lawrence & others] ★672; 696—E
  myeloid, acute priapism in child first symptom, [Borias] 212—ab
  Treatment: See also under other subheads of Leukemia
  treatment, [Craver] ★244
  treatment, Italian Hematologic Association discusses, 54
  treatment, nitrogen mustards, [Wilkinson] 138—ab;[Haden] 309—ab; [Wintrobe] 350—ab
  treatment, radioactive isotopes, [Haden] ★309
  treatment, urethane, [Hirschboeck & others] ★90; [Haden] 309—ab; [Haddow & Patterson] 643—C
LEUKOCYTES: See also Eosinophilia; Mononucleosis, Infectious
  cerebral center which regulates formation? 955
  Count: See also Agranulocytosis, Acute; Leukemia
  count, acute leukosis in children, [Caselli] 286—ab
  Pelger-Huët's nuclear anomaly of, false shifting to left, [Jonsson] 585—ab
  picture during diphtheria, [Baumgartner] 726—ab
  regulation, role of gastrointestinal tract, [Boccuzzi] 721—ab
  unusual response in kala-azar, [Levy & Yiengst] ★81; 110—E
LEUKONYCHIA, [Montgomery] 1114—ab
LEUKOPLAKIA of urinary tract, [Patch] ★824
  treatment, 214
LEUKOSIS: See Leukocytes count
LEUKOTOMY, Prefrontal: See Brain surgery
LEWANDOWSKY, rosacea-like tuberculid of, treatment, 72
LEWIS, WILLIAM G., personal, 193
LIBBY'S Strained and Homogenized Apricot-Farina, 690
LIBEL and Slander: See Medicolegal Abstracts at end of letter M
LIBRARIANS: See under Library; Medical Record Librarians
LIBRARY: See also Books; Journals
  Gengenbach (Frank P.)., Colorado, 785
  Hunter Memorial, 339
  medical librarians, shortage for Veterans Administration, 192
  Moorehead (Frederick B.) Memorial Library, U. of Illinois, 702
  Quine, of medical sciences, U. of Illinois, 785
  Smith (J. D.) memorial, 838
  U. S. Army Medical, (symposium on medical subject headings) 204; (needs help) 410; (Letterman exhibit) 410; (acquires "Great Herbal" of China) 783
  U. S., U. S. Department of State maintains in 3 other American republics, 736-ab
LICE, isobornyl thiocyanoacetate-technical, N. N. R., (description) 1099; (Wyeth) 1099
LICENSURE, A. M. A. Annual Congress on, (tentative program) 45—OS
  British bill to install refugee doctors on Medical Register, England, 199
  to practice, W. Va., 339
  what is osteopathy? 986-E
LIDS: See Eyelids
LIE Detector: See Medicolegal Abstracts at end of letter M
LIFE: See also Death; Living
  Duration: See also Old Age
  duration, Congress of Longevity, Paris, 841
  duration in duodenal ulcer, [Feldman] ★736
  expectancy at high altitudes, Bolivia, 417
  Insurance: See Metropolitan Life Insurance Co.
  Insurance Medical Research Fund: See Foundations
LIFT, hydraulic, for paralyzed patients, [Wesselhoeft] 56-C

LIGHT, electrostatic bulb luminescence, 591
  sensitivity, sulfonamide photosensitivity, [Watkinson] 211—ab
  Therapeutic Use: See Baker
  tinted lenses, [Cowan] *1098
  Toxicity: See Sunburn
LIGHTHOUSE, Hanovia, 690
LILLY, JOSIAH, death, 702
LIMBS: See Extremities
  Phantom Limb: See Amputation
LIMBS ARTIFICIAL: See also Amputation
  for veterans, 991
LIP: See Lips
LIPOCAIC, value in liver hypertrophy, [Bockus] 299-ab
LIPOMAS of Intestine, [Tenner] 1006-ab
LIPS, lipstick cheilitis, [Zakon] 123-ab
LIPSTICK: See Cosmetics
LIQUOR, Alcoholic: See Alcoholism
LITERATURE: See Books; Journals; Library
LITHIASIS: See Calculi (cross reference)
LIVEDO racemosa or reticularis, 510
LIVER: See also Bile Ducts
  biopsy, (trocar), [Volwiler] 352-ab
  cancer, [Brunschwig] *28
  cell gymnastics in hepatitis, [Pribram] 711-ab
  cirrhosis, control of ascites in, 289
  cirrhosis Crosby-Cooney glass button operation for intractable ascites, [Welch] 649 ab; [Lord] *767
  cirrhosis, methionine for 931-E
  cirrhosis (portal, and discoloration of fingers, 71
  cirrhosis, treatment, liver extract, [Rawls] 210-ab; (correction) 413
  destruction of pentothal, [Shideman] 1006-ab
  disease, diet in pathogenesis and therapy, [Ponticaccia] 67-ab
  disease, thymol turbidity test in, [Kunkel] 579-ab
  Extract: See Liver preparations
  function test, prothrombin response to vitamin K as, [Wahi] 652-ab
  glycogen in, uneven distribution [Gomori] 502-ab
  hypertrophy, with high blood fats, value of lipocaic, [Bockus] 299—ab
  inflammation (acute), surgical aspect, [Bergenfeldt] 139—ab
  inflammation after transfusions, [Rivers] 292-ab
  inflammation (homologous serum), [Schiff] 799-ab
  inflammation (infectious), prolonged incubation, and homologous serum jaundice, [Aycock] 811-ab
  inflammation (infecious), syringe-transmitted epidemic; infectious donors, [Capps & others] *819
  inflammation, liver cell gymnastics in hepatitis, [Pribram] 711-ab
  inflammation, observations on hepatitis, (film review) 1001
  Oil: See Cod Liver Oil
  preparations, extract intravenously in cirrhosis, [Rawls] 210—ab; (correction) 413
  preparations, extract treatment of chronic brucellosis [Griggs] *911
  preparations, extract treatment of pernicious anemia, 601-ab; 657
  preparations, extract vs. crude liver for pernicious anemia, [Haden] 310-ab
  preparations, extract vs. folic acid, 772-E
  preparations, extracts and pentose nucleotide plus penicillin for agranulocytosis, [Muller] 951-ab
  preparations, predigested beef liver for pernicious anemia, [Bahner] 141—ab
  preparations, treatment of anemia, [Elvehjem] *916
  protein, biologic availability, 1101-E
  radioactive virus, 473-E
  role in renal sulfonamide complications, [Kuzma] 1003-ab
LIVING: See also Life
  Conditions: See Housing
  Miracle of Living (film review), 575
LOA LOA: See Filariasis
LOAN Fund: See Students, Medical
LOBOTOMY (Leukotomy), Prefrontal: See Brain surgery
LOCKJAW: See Tetanus
LOCOMOTOR ATAXIA: See Tabes Dorsalis
LOEFFLER'S Bacillus: See Diphtheria bacillus
LONGEVITY: See Life duration; Old Age; Physicians, veteran
LONG ISLAND College of Medicine, 482; (Bringing Modern Medicine to the People) 557-E
LUCITE mold, use in congenital abscence of vagina, [Counseller] *861
LUMINESCENCE, electrostatic bulb, in multiple sclerosis patient, 591
LUNGS: See also Bronchus; Pleura; Respiratory System
  Abscess: See also Lungs, suppuration
  abscess, greater incidence after use of penicillin in pneumonias, [Keefer] 320-ab
  abscess, medical endobronchial treatment, [Fourestier] 725-ab
  abscess, progress in bronchology, [Clerf] *734
  abscess, sulfonamides plus penicillin for, 127
LUNGS—Continued
  apical scars, etiology, 110-E
  Blood Supply: See Arteries, pulmonary
  cancer, bronchogenic, 1021-ab; [Gagnon] 1068-ab
  cancer, emphysema as sign, [Rigler] 650-ab
  cancer, surgical treatment, when recommended, [Waring] 313-ab
  Cavities: See also Tuberculosis of Lungs
  cavities in Boeck's sarcoid, [Appelman] 505-ab
  collapse, (absorption) in tuberculosis, [Graham] 137-ab
  collapse in spontaneous mediastinal emphysema, [Karns & Daue] *622
  collapse, postoperative atelectasis, [Clerf] *731
  cystic disease, [McRae] 577-ab
  decortication in chronic empyema, [Curreri] 207-ab
  Disease: See also Pneumonoconiosis
  disease, bagasse disease, [Gerstl] 198-ab; [Le Mone] 650-ab; 1050-E
  disease, skin tests in, [Groover] 198-ab
  disease, treatment, recent advances, [Waring] *311; (reply) [Waring] 1062—C
  edema, and eosinophilia, [Henderson] 206-ab
  Embolism of Pulmonary Artery: See Embolism, pulmonary
  Emerson Lung Immobilizing Chamber, 398
  function after pneumonectomy, [Birath] 135-ab
  herniation (cervical) [di Clo] 355-ab; [Meakins] 1068-ab
  Hyperventilation: See Respiration
  infarction, in children, [Zuschlag] 493-ab
  Infection: See also Influenza; Pneumonia; Tuberculosis of Lung
  infection from Nocardia asteroides simulating tuberculosis, [Glover & others] *172
  pathology, cor pulmonale, 11-E
  pathology in fatal histoplasmosis, [Holt] 897-ab
  roentgen appearance of persistent infiltrates, [Furcolow] 721-ab
  Suppuration: See also Lungs abscess
  suppuration, local penicillin in, [Metras] 951-ab
  suppuration, penicillin instilled into, [Benard] 726-ab
  surgery, cavernostomy, [O'Brien] 719-ab
  Tuberculosis of: See Tuberculosis of Lung
  tularemia, [Morgan] 350-ab
LUMBOSACRAL Region: See Pilonidal Sinus
LUPUS Vulgaris: See Tuberculosis luposa
LYCOPODIUM spores, foreign body granuloma, 770-E
LYMPHATIC SYSTEM: See also Lympho-; Mononucleosis, Infectious
  bronchus node perforation in primary tuberculosis, [Valledor] 904-ab
  cervical nodes, metastases of oral cancer, [Weyde] 501-ab
  diseases, nitrogen mustards for, [Haden] 310-ab
  mediastinal adenopathy, treatment, [Waring] 313-ab
  peripelvic lymphatic cysts of kidney, [Scholl] *4
LYMPHOCYTES: See also Choriomeningitis
  in spinal fluid treatment of latent congenital syphilis, 215
LYMPHOEPITHELIOMA, treatment, urethane, no clinical improvement, [Hirschboeck & others] *93
LYMPHOGRANULOMA Benignum: See Sarcoid
LYMPHOGRANULOMATOSIS: See Hodgkin's Disease
LYMPHOGRANULOMA, VENEREAL [Costello] 1066-ab
  diagnosis, serologic tests, [Smadel] *1080
LYMPHOMAS, early diagnosis; treatment, [Craver] *244
LYMPHOMATOSIS, genetic control in fowl, 331-E
LYMPHOPATHIA Venerea: See Lymphogranuloma, Venereal
LYMPHOSARCOMA, 5 year survivals, [Craver] *245
  in children, [Dargeon] *464
  of bone, [Phemister] *551
  treatment, nitrogen mustard, [Wintrobe] 350-ab
LYNCH Essay Contest: See Prizes

M

McARTHUR Lecture: See Lectures
McCOLLUM-Pratt Fund: See Foundations
MacEWEN, E. M., *Journal of Iowa State Medical Society* April issue dedicated to, 1105
McINDOE principle, utilized in correcting congenital absence of vagina, [Counseller] *861
MACKEY, ROGER D., personal, 479
MADRID symptomatic complex, [Peraita] 68—ab
MAGAZINES: See Journals
MAGNESIUM silicate: See Talc
  sulfate treatment of eclampsia, [Irving] 494-ab
MAGNUSON, PAUL B., (Heads Veterans medical department) 270—OS; 401—OS; (reports veterans' medicine suffers from lack of funds) 335-OS
MAHONEY, JOHN F., personal, 991
MAININI-Galli Test: See Pregnancy diagnosis
MALARIA, clinical (film review), 120
  in United States in 1945, [Faust] 131-ab
  International Congresses on (4th) 833-OS; 1107
  quartan, transmitted by transfusion, [Rogers] 501-ab
  syphilis, serologic tests in, [Nelson] 351—ab
  therapeutic, availability to treat neurosyphilis, 193
  therapeutic, plus penicillin in neurosyphilis, [Curtis] 283-ab
  treatment, chloroquine diphosphate, N. N. R., (description) 1019; (Winthrop) 1019
  treatment, paludrine and quipenyl, 345
  treatment, quinacrine, quinine, pamaquine, hydroxyethylapocupreine pentaquine, [Chen] 208-ab
  treatment, quinacrine suppressive medication, [Baker] 199-ab
  vivax, paludrine in, [Woodruff] 427-ab
MAL DEL PINTO: See Pinta
MALE: See Eunuchoidism; Spermatozoa
  Hormones: See Androgens
  Impotence: See Coitus
MALFORMATIONS: See Abnormalities
MALIGNANCIES: See Cancer; Sarcoma;
MALINGERING, visual acuity, 1010
MALNUTRITION: See Nutrition
MALPRACTICE: See Medicolegal Abstracts at end of letter M
MALTA FEVER: See Brucellosis
MAMMARY: See Breast
MANIPULATION of spine to relieve pain after testicle injury, 592
MANSLAUGHTER: See Murder
MANTOUX TEST: See Tuberculin
MAPHARSEN: See Oxophenarsine
MARFAN'S Syndrome, [Tobin] 498—ab
MARGARINE: See Oleomargarine
MARRIAGE: See also Coitus; Contraception; Families; Maternity; Paternity; Pregnancy
  Miracle of Living (film review), 575
MARROW: See Bone Marrow
MASCARA causing pigmentation of palpebral conjunctiva, [Reese] 797-ab
MASKS, face, use when examining tuberculous patient, 70
MASTECTOMY: See Breast cancer; Breast surgery
MASTITIS: See Breast inflammation
MATAS Lectureship: See Lectures
MATERNITY: See also Families; Lactation; Pregnancy
  mother's age, role in stillbirths, 558—E
MEAD Johnson Award: See Prizes
MEASLES epidemic, Ill., 634
  epidemic, N. Y. C., 888; 993
  epidemic, 1,000 cases a week, Mich., 566
  treatment, serum globulin available, 889
MEAT: See also Trichinosis
  hazard of home butchering, [Palm] 208-ab
MEDALS: See Prizes
  for War Service: See World War II, Heroes
MEDIASTINITIS due to ingesting glass, [Steele] *554
MEDIASTINOTOMY in spontaneous mediastinal emphysema, [Karns & Daue] *622
MEDIASTINUM emphysema, mediastinotomy in, [Karns & Daue] *622
  lymphadenopathy, treatment, [Waring] 313-ab
MEDICAL ACTIVITIES, Joint Committee for Coordination of: See American Medical Association, Joint Committee
MEDICAL AIDES, Navy training program for, in Pacific Islands (Joint Committee report), 778-OS
MEDICAL ASSOCIATION: See American Medical Association; Societies, Medical; list of Societies at end of letter S
MEDICAL AWARDS: See Prizes
MEDICAL BOOKS: See Books; Library; Book Notices at end of letter B
MEDICAL CARE: See Medical Service
MEDICAL CENTER: See also Health center; Health units
  National Naval, graduation exercises, 700
  New England Medical Center receives gift of $300,000, 272
MEDICAL CLINIC: See Clinics
MEDICAL CODE: See Ethics, Medical
MEDICAL COLLEGE: See also Schools, Medical; University
MEDICAL CONDITIONS in Alaska, (replies) [Seinfeld] 347-C; [Brauner] 347-C
  in Puerto Rico and Virgin Islands, 413; [Irons] *979
MEDICAL CONGRESS: See Congress
MEDICAL CORPS: See Army, U. S.
MEDICAL DEFECTS: See Physical Defects
MEDICAL DEPARTMENT: See Army, U. S.; Navy, U. S.
MEDICAL DIRECTORY: See American Medical Directory
MEDICAL ECONOMICS: See Economics, Medical

MEDICAL EDUCATION: See Education, Medical
MEDICAL EQUIPMENT: See Medical Supplies
MEDICAL ETHICS: See Ethics, Medical
MEDICAL EXAMINATION: See Physical Examination
MEDICAL EXAMINERS, Aviation: See Aviation
MEDICAL EXHIBITS: See Exhibits
MEDICAL FEES: See Fees
MEDICAL HISTORY: See Medicine, history
MEDICAL JOURNALS: See Journals
MEDICAL INSTITUTE: See Institute (cross reference)
MEDICAL JURISPRUDENCE: See also Medicolegal Abstracts at end of letter M
  court decision on suffocation of infants by milk feeds or vomitus, 1060
  decision of U. S. Supreme Court on what is osteopathy? 986-E
  Medicolegal Congress, Jan. 19-21, St. Louis, 50
MEDICAL LEGISLATION: See Laws and Legislation
MEDICAL LIBRARY: See Library
MEDICAL LICENSURE: See Licensure
MEDICAL MAGAZINES: See Journals
MEDICAL MEETINGS: See Army, U. S.; Societies, Medical; list of Societies at end of letter S
MEDICAL MISSION to Puerto Rico and Virgin Islands, 413; (report) [Irons] ★979
MEDICAL MISSIONARIES: See Missionaries
MEDICAL MOTION PICTURES: See Moving Pictures
MEDICAL MUSEUM: See Health museum; Museum
MEDICAL OFFICERS: See Army, U. S.; Navy, U. S.; World War II
MEDICAL PERIODICALS: See Journals
MEDICAL PICTURES: See Moving Pictures, Medical
MEDICAL PLANS: See Medical Service Plans
MEDICAL PRACTICE: See Medicine, practice; Physicians
MEDICAL PRACTICE ACTS: See Licensure; Medicolegal Abstracts at end of letter M
MEDICAL PRESS, International 833-OS
MEDICAL PRIZES: See Prizes
MEDICAL PROFESSION: See Physicians; Surgeons
MEDICAL PUBLIC RELATIONS: See Public Relations
MEDICAL RECORD LIBRARIANS, course for 636; 1058
MEDICAL REGISTER, bill to install refugee doctors on, England, 199
MEDICAL RESEARCH: See Research
MEDICAL SCHOOLS: See Schools, Medical
MEDICAL SCIENCE: See Medicine; Research; Science
MEDICAL SERVICE: See also Consultants; Consultation; Health center; Health units; Hospitals; Insurance, sickness; Medical Center; Medical Conditions
  A. M. A. Council on: See American Medical Association
  A. M. A. Council on National Emergency Medical Service, [Bortz] 183; 475
  A. M. A. resolutions on exploiting professional medical services by hospitals, 189; 260
  Fees for: See Fees
  for Armed Forces: See Armed Forces
  for Students: See Students, health service
  for Veterans: See Hospitals, veterans; Veterans
  free, Senator Taft opposes, 883-OS
  in Puerto Rico, 413; [Irons] ★981
  in Virgin Islands, [Irons] ★984
  Industrial: See Industrial Health
  National Conference on, 124
  needed, other than for illnesses, by large proportion of child population, [Hardy] ★20
  Plans: See Medical Service Plans *following*
  public wants a doctor when they want him, 695-E
  Rural: See Rural Communities
  State: See Medicine, state
  Supply of Physicians for: See Physicians, supply
  Wagner-Murray-Dingell Bill: See Wagner
MEDICAL SERVICE PLANS: See also Hospitals, expense insurance
  Hawley to head Blue Shield plans, 270-OS
  New York, membership grows, 993
  philosophy, [Feierabend] ★57
  prepayment plans (voluntary), A. M. A. 10 point program, 262; (Council report) 188; 268
  Rhode Island Society's voluntary prepayment plan, 46-OS
MEDICAL SOCIETY: See Societies, Medical; list of societies at end of letter S
MEDICAL STATISTICS: See Vital Statistics
MEDICAL STUDENTS: See Students, Medical
MEDICAL SUBJECT HEADINGS, symposium at Army Medical Library, 204
MEDICAL SUPPLIES: See also Apparatus; Dressings; Drugs; Instruments; (cross reference)
  reclamation and repair of equipment, 784
  surplus, sale of 336
MEDICAL TERMINOLOGY: See Terminology
MEDICAL WEEK in Hungary, 483
MEDICAL WOMEN: See Physicians, women
MEDICATION: See Drugs
MEDICINE: See also Education, Medical; Medical Service; Physicians; Surgeons;
  art of, and psychosomatic medicine, 179—E
  Aviation: See Aviation medicine
  Bringing Modern Medicine to the People by Long Island College, 557-E
  Cults: See Osteopathy
  Fellowships: See Fellowships
  Foundations aiding: See Foundations
  group practice in U. S., [Goldstein] ★857
  history, Medical Society of State of Pennsylvania to publish history, 838
  history of World War II, 700
  Industrial: See Industrial Health
  Institute in National Institute of Health of U. S. P. H. S. established, 271
  Lectures: See Lectures
  Legal: See Legal Medicine (cross reference)
  Organized: See American Medical Association; Societies, Medical
  Physical: See Physical Medicine
  Practice: See also Licensure; Medical Service; Physicians, practicing
  practice, American Academy of General Practice, 834-OS
  practice (general), allergy from perspective of, [Alexander] ★762
  practice (group), in U. S., [Goldstein] ★857
  practice, hospitals and, 184; 260
  Practice, Opportunities for: See Physicians, positions open
  practice, selling price of, [Dickinson] 333-OS
  Preventive: See Preventive Medicine
  Prizes in: See Prizes
  progress, [Bortz] 183
  Psychosomatic: See Psychosomatic Medicine
  Research in: See Research
  Scholarships: See Scholarships
  School of: See Schools, Medical
  science in, application of 786
  social, public health is, [Emerson] 658
  Socialized: See also Insurance, sickness; Medicine, state
  socialized, A. M. A. resolution on propaganda distributed to armed forces: 190; 257
  socialized, A. M. A. resolutions on propaganda by federal government employees in 268
  socialized, National Health Assembly, Washington, D. C., May 1-4, 694-E; 883-OS
  Socialized, National Health Service ("White Paper"; Beveridge Scheme): See National Health Service Act
  socialized, Taft says administration health bill would nationalize medicine, 335-OS
  Socialized, Wagner-Murray-Dingell Bill: See Wagner
  Societies: See Societies, Medical
  Specialization: See Specialties
  state, British physicians reject nationalized medicine, 628-E; 640
  total, nation urged to match total war with 988-OS
  Tropical: See Tropical Medicine
  Women in: See Nurses; Physicians, women
MEDICINE: See Journals
MEDICINES: See Drugs
MEDICOLEGAL: See Legal Medicine (cross reference); Medicolegal Abstracts at end of letter M
MEDULLA Spinalis: See Spinal Cord
MEDULLOBLASTOMA of nervous system, [Naffziger & Boldrey] ★98
MEETINGS: See Societies, Medical; list of Societies and Organizations at end of letter S
MEGACOLON: See Colon
MELANOMA and moles (film review), 420
MELKERSSON'S Syndrome, [Kettel] 133—ab
MEMORIAL to Physicians: See Physicians
MEMORY defect after electric shock treatments, 289
MEMPHIS, newborn mortality and morbidity with continuous caudal analgesia, [Hingson & others] ★221
MEN, Experimentation on Human Beings: See Research
  in Service: See Veterans; World War II
MENIERE'S Disease: See Vertigo, aural
MENINGES, hemorrhage (subarachnoid), cerebral arteriography in, [Wechsler & Gross] ★517
  hemorrhage (subarachnoid), [Ungerman] 801—ab
  hemorrhage [illegible] of aneurysmal [illegible]
  Tuberculosis: [illegible] s
  tumors, primary diffuse meningeal sarcomatosis, [de Zarate] 904—ab
MENINGIOMA, [Naffziger & Boldrey] ★99; ★102; ★103
MENINGITIS: See also Arachnoiditis
  cerebrospinal epidemic, sulfadiazine and sulfamerazine for, [Zeller & others] ★8
  diagnosis, serologic tests, [Smadel] ★1080
  etiology: Alcaligenes faecalis, [Terry] 64—ab
  etiology, spinal analgesia, [Davidson] 427—ab
MENINGITIS—Continued
  etiology: spinal puncture, preventing, 344
  gonococcic, 15 years after urethritis, [Stigler & McLester] ★919
  influenza, intrathecal therapy not required; use of serum, streptomycin, sulfonamides, [Hoyne & Brown] ★597
  Meningococcic: See Meningitis, cerebrospinal epidemic
  syphilitic, acute, penicillin for, ★878
  treatment, penicillin, [Schmidt] 505—ab
  treatment, streptomycin, [Paine] 350—ab
  tuberculous, in children, streptomycin and promizole for, [Lincoln & others] ★593
  tuberculous, streptomycin in, [Debre] 723—ab; 841
MENINGOCOCCUS epidemics, Colombia, 1009
  Meningitis: See Meningitis, cerebrospinal epidemic
MENINGOENCEPHALITIS after epidemic parotitis, [Hodenpijl] 505—ab; [Eberlein] 580—ab
  Syphilitic: See Dementia Paralytica
MENOPAUSE, 809
  hypogonadism before, [Thompson] ★318
  treatment, abnormal bleeding, [Thompson] ★318
  uterine bleeding after, 1117
  what is most satisfactory endocrinologic treatment, [Thompson] 319—ab
MENSTRUATON, Cessation of: See Amenorrhea; Menopause
  cycle, periodic disease, [Reimann] ★239
  disabling bleeding after oophorectomy, 511
  hygiene, tampax, danger of rupturing hymen, 908
  ovulation without, 591
  Painful: See Dysmenorrhea
  what's new in endocrinology, [Thompson] ★317
  women who continue to bleed post partum, 290
MENTAL DEFECTIVES: See also Idiocy
  feebleminded patients, phenylpyruvic acid in urine, 629—E
  Washington children (30) undergo treatment for mental retardment, 988—OS
MENTAL DISORDERS: See also Alcoholism; Dementia Paralytica; Dementia Precox; Psychoses
  dermatologic manifestations, [Cornbleet & Brown] ★152
  Hospitalization in: See Hospitals, psychiatric
  insanity rate higher in war years, 119—OS
  patients, annual census, 632
  research center, U. S. government approves plans for, 477—OS
  Rh factor blood incompatibility, [Beca] 68—ab
  therapeutic social clubs for patients, London, 999
  treatment, prefrontal leukotomy and depersonalization, [Shorvon] 584—ab
MENTAL HEALTH: See Mental Hygiene
MENTAL HOSPITALS: See Hospitals, psychiatric
MENTAL HYGIENE, center for emotionally disturbed children, N. Y. C., 786
  clinic demonstration, Md., 480
  clinic for veterans, 193
  Division of USPHS, appointments to, 632
  International Committee on grant to study effect of war on children, 991
  International Congress on Mental Health; World Federation for Mental Health, 788
  National Advisory Mental Health Council, 991
  National Association for Mental Health conference, London, 53
  National Committee for, 340
  research, more grants for, 193
MENTALITY: See Mental Defectives
MEPACRINE: See Quinacrine
MEPERIDINE HYDROCHLORIDE (demerol)
  methadon compared with, [Troxil] ★921
  abstinence syndrome same as morphine addiction? 512
MERALLURIDE sodium solution, diuretics, [De Graff] ★1025
MERBROMIN (mercurochrome), value as disinfectant, [Morton & others] ★40
*di*MERCAPTOPROPANOL: See BAL
MERCUPURIN: See Mercurophylline
MERCUROCHROME: See Merbromin
MERCUROPHYLLINE (mercupurin), diuretic, [DeGraff] ★1026
  neurologic symptoms after injection, (reply) [Ulm] 434
MERCURY: See also Mercurophylline
  ammoniated, child of 3 ate 2 teaspoonfuls, 360
  bacteriostatic and bactericidal actions of, (Council report) [Morton & others] ★37
  bichloride, solution, for furunculosis, 955
  diuretic, sudden death from injection, [Oettle] 66—ab
  diuretics, [Barnes] 304—ab; [DeGraff] ★1025
  in domestic water supply, 71
  injection, neurologic symptoms after, (reply) [Ulm] 434
MERCUZANTHIN, diuretics, [DeGraff] ★1026
MERSALYL, diuretic, [DeGraff] ★1025

MERTHIOLATE, value as disinfectant, [Morton & others] *10
MESANTOIN treatment of epilepsy, [Fetterman] 721—ab
METABOLISM: See also under names of specific substances as Carbohydrates
  acetic acid role in, 771—E
  basal, Sanborn Metabulator, 1947, 175
  disturbances after injury, [Beattie] 583—ab
  hormone, in target organs, [Lackhardt] (correction) 50
METAL: See also Lead; Mineral; Silver; Tantalum
  fumes and dusts, benign pneumonoconiosis from, [Sander] 61—ab
METAPHEN, value as disinfectant, [Morton & others] *10
METASTASES: See Cancer; Granuloma inguinale; Tumors
METHADON, clinical evaluation, [Troxil] *920
  for pain in bone and joint disorders, [Ishmael] 801—ab
METHEMOGLOBINEMIA in infants from nitrates in water, [Stafford] 209—ab
METHIONINE, treatment of hepatic cirrhosis, 934—E
METHYL-*Bis* (*Beta*-CHLOROETHYL) AMINE HYDROCHLORIDE: See Nitrogen Mustard
METHYL CHLORIDE, toxicity, 956
METHYLENEBIS (Hydroxycoumarin): See Dicumarol
3-METHYL-5,5 PHENYLETHYLHYDANTOIN: See Mesantoin
METHYL SALICYLATE poisoning, [Cancelmo] 651—ab
METHYLTHIOURACIL treatment of hyperthyroidism, [Frisk] 724—ab
  treatment of thyrotoxicosis, [Barfred] 205—ab
METRAZOL, activated electroencephalography, [Kaufman] 1004—ab
METROPOLITAN Life Insurance Co., (role of maternal age in stillbirths) 558—E; (survey of young Americans crippled by poliomyelitis) 883—OS
MEXICAN Indians, nutrition, [Miranda] *512
MEXICO, school of nursing in, 479
MEYER, THEODORE R., personal, 783
MICE, *poliomyelitis virus source*, [*Francis & others*] *1089
MICHIGAN: See Detroit
MICROBIOLOGY: See also *Bacteria*; *Fungi*
  new department at Western Reserve U., 482
MICRONIZED method of giving antibiotics, [Waring] 313—ab
MICRO-ORGANISMS: See Bacteria
MICROSCOPY, electron, study of viruses, [*Wyckoff*] *1081
  phase, and its photographic application, 995
MICROTONE Audiomatic Hearing Aid, 109
MICROWAVES, medical use, [Horvath] *606
MICTURITION: See Urination
MIDDLE AGE: See Age, middle
MIDDLETON, WILLIAM S., personal, 783
MIDWIFERY: See Obstetrics
MIGRAINE: See also Headache
  treatment, histamine and antihistamine substances, [Biro] 586—ab
  treatment, procaine injection, ligate or resect temporal and meningeal arteries, [Haynes] *538
MILITARY: See also Army; Veterans; World War II
  Citations: See World War II Heroes
  training, congress studies, 93—OS
MILK: See also Casein; Cheese; Lactalbumin; Whey
  dry, nutritive value, [Wilder & Keys] *326
  feeds, infants suffocated by, 1060
  foods for emergencies, [Wilder & Keys] *326
  goat's, vs. cow's, main therapeutic considerations, 1117
  Human: See also Lactation
  human, drugs excreted in, [Sapeika] 66—ab
  human, thiamine content, [Sos] 68—ab
  poliomyelitis virus in, [Francis & others] *1091
MILL dust, allergens, [Jiminez-Diaz] 949—ab
MILLER, CLARENCE R., personal, 784
MILLER-Abbott Tube: See Duodenal Tube
MINERAL: See also Iron; Lead; Silver
  content of flours, [Maynard & Nelson] *1044
  Oil: See Petrolatum, liquid
MINOT, GEORGE R., dedicate anniversary volume of *Blood* to, 481
MISCARRIAGE: See Abortion
MISSIONARIES, medical, China honors Dr. Lee S. Huizenga, 413
MITE BITE Fever: See Tsutsugamushi Disease
MITRAL VALVE stenosis, surgical treatment, [Mahaim] 428—ab
  systolic murmurs, 979—ab
MOLASSES, nutritive value, [Maynard & Nelson] *1048
MOLD, lucite, use in congenital absence of vagina, [Counseller] *861
MOLD (fungi): See also Penicillin; Yeast
  growth, prevention on books, 658
MOLE: See Nevus
MONGOLISM: See Idiocy
MONONUCLEOSIS, INFECTIOUS, treatment, convalescent scarlet fever serum, [Park] 902—ab
MONOXIDE: See Carbon Monoxide
MONUMENTS: See Physicians, memorial
MOORE, CARROLL L., personal, 939
MOOREHEAD, *FREDERICK B.*, *Memorial Library*, U. of Illinois, 702
MORALE, group, and medical incapacity in *industry*, [Brodman] 846—ab
MORBIDITY: See Disease
  Statistics: See Vital Statistics
MORGAN, HUGH, consultant for A. M. A. Council on National Emergency Medical Service, 833—OS
MORPHINE addiction, 512
  addiction, relief by prefrontal lobotomy, [Mason & Hamby] *1039
  *di*acetyl, heroin seized in New York, 788
  methadon compared with, [Troxil] *921
  sulfate, safe dosage range, technic for giving intravenously, 72
MORTALITY: See Accidents, fatal; Death; Infants; Physicians, deaths; Vital Statistics; under names of specific diseases
MOSQUITOES, exotic anophelines transported by plane, [Miller] 1006—ab
MOTHERS: See Families; Maternity; Pregnancy
  Milk: See Milk, *human*
MOTION PICTURES: See Moving Pictures
MOTION SICKNESS, remedies (Council discusses), 692
  treatment, [Monto] 209—ab
MOTOR VEHICLES: See Automobiles; Medicolegal Abstracts at end of letter M
MOUSE: See Mice
MOUTH: See also Lips; Teeth; Tongue
  cancer, cervical lymph node metastases, [Weyde] 504—ab
  cancer, course on, 180
  ulcer (recurrent), 433
MOVING PICTURES: See also Television
  medical, American Cancer Society library covering all existing films on cancer, 880—E
  medical, A. M. A. gives film to British Medical Association, 834—OS
  medical, A. M. A. policy of judging and *lending*, 475
  medical, Dr. Fishbein to cooperate in preparing series, 831—OS
  Medical, Reviews of: See Moving Pictures, Medical (Reviews) *following*
  surgical, International Congress on, (1st), Paris, 945
MOVING PICTURES, MEDICAL (REVIEWS)
  Abdominal Tube Pedicle Graft to Lower Extremity via Wrist, 1111
  Accident Service, 348
  Ascorbic Acid and Scurvy, 575
  Clinical Malaria, 420
  Development of Gastrointestinal Tract, 491
  Eyes That Hear, 318
  Hypothyroidism. Physiology, Diagnosis and Treatment, 712
  Know Your Baby, 1063
  Miracle of Living, 575
  Moles and Melanoma, 420
  Observations on Hepatitis, 1001
  Occupational Health Problems, 1111
  Peptic Ulcer, 202
  Plague Control, 420
  Return to Action, 843
  Surgery in Chest Diseases, 947
MUCIN antacid mixture, effect on gastric secretion, [Kammerling] 1003—ab
  secreting adenocarcinomas, [Patch] *825
  treatment of peptic ulcer, [Boles] *531
MUCOUS Membrane: See Stomach
MUHLBERG, WILLIAM, award for public service, Ohio, 273
MULTIPLE Birth: See Twins
MUMPS: See Parotitis, Epidemic
MURI
  cas[illegible] ard Spilsbury, 344
  of [illegible] —E
MURI[illegible] Bill: See Wagner
MUSCLES: See also Cartilage; Fascia; Tendons
  Cardiac: See Myocardium
  Inflammation: See Myositis
  occipital headache in a singer, 72
  poliomyelitis effect, [Knapp] 425—ab
  scalenus anticus syndrome, 849
  scalenus anticus syndrome, surgical treatment, [Adson] 650—ab
  Spasm: See Poliomyelitis; Spasm; Tetany
  Strain: See Strain
  Strength, Decrease of: See Myasthenia
  transplantation of teres major and latissimus dorsi, [Zachary] 584—ab
  trapezii, innervation, 810
MUSEUM: See also Health museum
  of Science and Industry plans medical exhibits, Chicago, 272
MUSIC: See also Singer; Wind instruments
  musicogenic epilepsy, [Shaw] 583—ab
MUSTARD, nitrogen, treatment of Hodgkin's disease, lymphosarcoma and leukemia, [Wintrobe] 350—ab
  nitrogen, treatment of leukemia, [Wilkinson] 138—ab; [Haden] 309—ab
  nitrogen, treatment of lymphatic diseases, [Haden] 310—ab
  nitrogen, treatment of mycosis fungoides, [Kierland] 501—ab
  nitrogen, treatment of neoplastic disease, [*Rhoads*] *306
  nitrogen, vs. urethane treatment of Hodgkin's disease, [Jacobson] *95
MYASTHENIA, *recurrent, periodic disease*, [Reimann] *212
MYASTHENIA GRAVIS, 441—ab
  effect of injecting acetylcholine into brachial artery, [Wilson] 802—ab
MYCOBACTERIUM Tuberculosis: See Tubercle *Bacillus*
MYCOSIS: See also Actinomycosis; Coccidioidomycosis
  fungoides, nitrogen mustard for, [Kierland] 501—ab
MYELITIS: See Encephalomyelitis; Poliomyelitis
MYELOMA of bone and joint, [Phemister] *552
  multiple, treatment, [Rhoads] 308—ab
MYOCARDITIS associated with nasopharyngitis and tonsillitis, [Gore] 714—ab
  rheumatic, latent, [Rogers] 720—ab
MYOCARDIUM: See also Myocarditis
  Infarction: See also Thrombosis, coronary
  infarction, acute, routine use of anticoagulants, [Barnes] 304—ab
  infarction, factors influencing survival, [Tredway] 846—ab
  infarction, shock after (discussion), 1031—ab
  pathologically lowered frequency, [Stollreiter] 654—ab
MYOMA, uterine fibromyoma, x-ray therapy, [Pfahler] 898—ab
MYOPIA, visual training in, [Hildreth] 948—ab; 1100—E
MYOSITIS, acute interstitial polymyositis, penicillin for, [Friedmann] 66—ab
MYXEDEMA, Congenital: See Cretinism

MEDICOLEGAL ABSTRACTS

ASSAULT AND BATTERY: vaccination fraudulently performed, 280
BLOOD: paternity; blood grouping tests to determine, 203
  Rh factor in questioned paternity, 203
CANCER: onset; what constitutes "beginning" *within meaning of insurance policy*, 491
  stilbesterol; excessive dose as cause of, 712
CRIMES: sex offenders; detention for venereal examination, 419
DIABETES: gross immorality in relation to cure, 1002
DRUNKENNESS: chemical tests; admissibility in evidence, 131
EVIDENCE: see also Food, Drug and Cosmetic Acts, federal, devices; Harrison Narcotic Act; Malpractice
  case history given to physician by examinee, 574
  lie detector; admissibility of tests in evidence, 349
  paternity; blood grouping tests, 203
  scientific test; paternity, 203
  scientific tests; lie detector; admissibility of results of test, 349
  urinalysis as confession, 131
  witnesses, expert; examinee's recital of case history, 574
FOOD, DRUG AND COSMETIC ACTS: federal; devices; evidence; testimony of discoverer of device, 796
  federal; devices; evidence; testimony of patients, 796
  federal; devices; *misbranding*; advertising matter not accompanying device, 796
  federal; Spectro-Chrome; right to seize when in *possession of purchaser*, 281
  federal; devices; subject to seizure when in possession of purchaser, 281
FOOD HANDLERS: blood test required by law; *compensability of infection*, 131
HARRISON NARCOTIC ACT: evidence; average use *of drug by physicians*; *testimony* admissible, 574
  evidence; wholesale dealer's statement that order *of physician would have been refused*, 574
  evidence; witness, expert; opinion as to quantity *of drug* used; *testimony inadmissible*, 574
  limitation of actions, 574
HEART DISEASE: dust inhalation as cause of, 419
  workmen's compensation in relation to, 419
HOSPITALS FOR PROFIT: burns; res ipsa loquitur, 203
  death of patient; limitation of actions, 281
  tetanus; antitoxin not administered, 281
INSURANCE, HEALTH: pre-existing disease; cancer, 491

MEDICOLEGAL ABSTRACTS—Continued
INSURANCE, IN GENERAL: health of applicant; cancer, 491
INTOXICATION: See Drunkenness
LIBEL AND SLANDER: privileged communications; venereal disease; report to health department, 58
  privileged communication; venereal disease; report to patient, 58
  venereal disease; imputing; when actionable, 58
LIE DETECTOR: admissibility of results of test, 349
MALPRACTICE: burns; res ipsa loquitur, 203
  cancer; stilbestrol as cause of, 712
  drugs; stilbestrol; excessive dose, 712
  evidence; judicial notice of need for roentgenograms, 644
  evidence; res ipsa loquitur, 203
  evidence; witnesses, expert; necessity for, 644
  foreign bodies; needles; accidentally left in patient, 896
  fractures; roentgenogram; failure to make, 644
  fractures; roentgenogram; judicial notice of need for, 644
  husband's right of action; statute of limitations, 130
  limitation of actions; accrual of right of action, 712
  limitation of actions; concealment of right of action, 712
  limitation of actions; excessive administration of stilbestrol, 712
  limitation of actions; husband's suit for loss of services of wife, 130
  needles; left in patient, 896
  roentgenogram; failure to make; fractures, 644
  roentgenogram; judicial notice of need for, 644
  skill and care; standards; doctors of medicine, 644
  sterilization operation unsuccessful; statute of limitation applicable in suit by husband, 130
  stilbestrol; excessive dose, 712
  tetanus; antitoxin not administered; hospital's liability, 281
MEDICAL PRACTICE ACTS: diabetes cure; gross immorality in relation to, 1002
  licenses; revocation; gross immorality; diabetes cure in relation to, 1002
  nurses; practice of medicine by, 280
  vaccination as practice of medicine, 280
OTOR VEHICLES: drunken drivers; chemical tests; admissibility in evidence, 131
URSES: practical; practice of medicine by, 280
ATERNITY: blood grouping tests to determine, 203
  Rh factor in questioned parenthood, 203
HYSICAL EXAMINATIONS: blood test required by law; compensability of infection, 131
IENTIFIC TESTS: See Evidence
MALLPOX: vaccination as practice of medicine, 280
TERILIZATION OPERATIONS: see Malpractice
TILBESTROL: See Malpractice
ETANUS: antitoxin not administered; hospital's liability, 281
RAUMA: dust; inhalation as constituting, 419
VACCINATION: as practice of medicine, 280
VENEREAL DISEASES: detention of prostitutes for examination; statute constitutional, 419
  examination of prostitutes; statute constitutional, 419
  imputing infection; when actionable, 58
WORDS AND PHRASES: "accidental," 419
  "accompany," 796
  "beginning," 491
  "gross immorality," 1002
  "trauma," 419
WORKMEN'S COMPENSATION ACTS: blood test required by law of food handler; infection not compensable, 131
  coccyx; removal of refused, 59
  dust; inhalation of as accident, 419
  heart disease; inhalation of dust as cause of, 419
  heart disease; trauma; inhalation of dust as, 419
  medical services: examination; refusal to undergo, 1064
  medical services; spinal puncture; refusal to undergo, 1064
  medical services; operations; removal of coccyx; refusal to submit to, 59
  medical services; operations; refusal to undergo, 59
  spinal puncture; refusal to undergo, 1064

N

N. N. R.: See American Medical Association New and Nonofficial Remedies; and under names of specific drugs
NAILS, biting, 216
  leukonychia, [Montgomery] 1114—ab
  spoon, 433
NAPHTHOQUINONES Having Vitamin K Activity: See Vitamin K
NARCOTICS: See Morphine
NASAL: See Nose
  Sinusitis: See Sinusitis
NASOPHARYNGITIS: See also Colds
  myocarditis with, [Gore] 714—ab
NASOPHARYNX: See also Adenoidectomy; Nasopharyngitis
  use of radium for deafness, [Jennings] 1068—ab
NATIONAL: See also American; International; list of societies at end of letter S
  Advisory Cancer Council, 193; 479; 1054
  Advisory Mental Health Council, 991
  Association for Mental Health conference, London, 53
  Cancer Institute, (Dr. Heller heads), 1102—OS
  Cardiology Congress, 841
  Committee for Mental Hygiene, 340
  Committee on Home Safety, 475
  Conference on Rural Health, (proceedings) 773—OS
  Defense: See World War II
  Education Association, (Health Appraisal of School Children) 698—OS; 780—OS
  emergency medical service, A. M. A. council on, [Bortz] 183; 475
  Foundation: See Foundations
  Health Assembly, Washington, D. C., May 1-4, 694—E; 883—OS; 1107
  Health Bill: See Taft-Smith-Ball-Donnell National Health Bill
  Health Council meeting, Dr. L. H. Bauer appointed to represent A. M. A., 475
  health program, A. M. A. 10-point, 261
  Health Program, Bill to Provide for: See Wagner-Murray-Dingell Bill
  Health Service Act (England) (British Medical Association demands a radical amendment) 127; (future of denominational hospitals) 199; (opposition of British Medical Association) 416; (scheme for London under) 487; (censorship of medical publications under) 571; (collision with government and British Medical Association over) 571; (British physicians reject nationalized medicine) 628—E; 640; (results of plebiscite) 893; (new hearing aids to be supplied free) 999; (dentists reject work under) 1060
  Heart Committee organized, 995
  Heart Institute, medical bills in Congress, 408—OS
  Heart Week program, Chicago, 411
  Institute of Health, (Syphilis Study Section Symposium) 271; ★873; (Experimental Biology and Medicine Institute established) 271; (seeks Bethesda site for new center) 988—OS
  Institute of Industrial Medicine, Spain, 489
  Medical Service in Australia, 708
  Multiple Sclerosis Society, (A. M. A. resolution endorsing) 189; 258; (chemotherapy and use of antibiotics in multiple sclerosis) 730
  Municipal Health Congress (4th), Spain, 489
  Negro Health Week, 787
  Research Council, (grants in endocrinology) 124; (fellowship in study of atomic energy) [Warren] 418—C; (Committee for Research in Problems of Sex) 483; (Committee on Blood and Blood Derivatives) 565; (resolution concerning pooled plasma) 705; (Committee on Human Reproduction) 889; (criteria for use of quinidine) [Katz] ★1031; (committee visits Randolph Field) 1103
  Safety Council, (Committee and A. M. A. Committee to confer on problems in accident prevention) 475; (annual accident toll) 568
  Science Foundation, medical bills in Congress, 408—OS
  Tuberculosis Association, ("check tuberculosis" campaign) 112—E; (fellowships) 483
  Vitamin Foundation, 50
NATIONS, United: See United Nations
NATIONWIDE Health Program: See National Health Program
NAUSEA: See also Motion Sickness
  belyando, 731
NAVY, U. S.: See also World War II
  Bureau of Medicine and Surgery, (A. M. A. cooperation with), 476—OS; (medical aspects of radioactivity) 479
  commissioned officers, appointment, 121
  disease in, during World War II, 563
  examination for appointment in regular corps, 884
  exhibit on "Highlights of Military Surgery in World War II," also "Medicine at Operation Crossroads," 700
  graduate aviation medical examiners, 47
  graduate training, 563; 700; 835; 938; 1054
  graduate training, conference on, 47
  Medical Center graduation exercises. 700
NAVY, U. S.—Continued
  medical department, honorary civilian consultants to, 121
  medical history of World War II, 700
  medical logistics, didactic course on, 700
  medical officers approved for graduate training, 835; 938
  medical officers certified by American specialty boards, 1104
  medical officers request graduate training, 1054
  medical research, colloquium on, 700
  Medical Unit of University of California African Expedition, one year, 336
  medical work in World War I, narrative of, 563
  officers before retirement boards, 479
  officers, new regular, 835; 990; 1104
  officers transferred from Naval Reserve to regular Navy, 700
  Pensacola news, 563
  reserve consultants board, 410
  reserve consultants, meet, 336
  reserve medical divisions activated, 563; 1054
  reserve medical divisions (additional), 1104
  reserve officers nominated for duty, 835
  scrub typhus in, number of cases, 1054
  Surgeon General's symposium, 1104
  training program for medical aides in Pacific Islands (Joint Committee report), 778—OS
  yaws on Pacific Islands, check spread, 332—E
NEAR-SIGHTEDNESS: See Myopia
NEBRASKA, University of: See University
NEBULIZER nasal Premo, 769
  Premo, Improved, 108
NECROPSY: See Autopsies
NECROSIS: See Kidneys; Periarteritis nodosa
NEEDLES, radium, in bladder cancer, [Lenz] 206—ab
NEGROES, histoplasmin sensitivity, [Welch] 897—ab
  medical service for, Virgin Islands, [Irons] ★984
  National Negro Health Week, 787
  rider to appropriations bill rejected by committee, 1052—OS
  veterans hospital authorized by House of Representatives, 404—OS
NELSON, J. V. D., personal, 784
NEOPLASMS: See Cancer; Sarcoma; Tumors; region or organ affected
NEOSTIGMINE Methylsulfate treatment of paralysis, [Coodley] 646—ab
NEPHRITIS, glomerular, papaverine in cerebral angiospasm with, [Russek & Zohman] ★932 (addendum)
  in textile workers, [Platt] 583—ab
  subacute, 359
  Tuberculous: See Kidneys, tuberculosis
NEPHROPTOSIS: See Kidneys, ptosis
NEPHROSIS: See Kidneys, disease
NERVES: See also Ganglion; Nervous System; Neur-
  acoustic, tumor of 8th nerve, [Naffziger & Boldrey] ★100
  Anesthesia: See Anesthesia
  Facial: See also Neuralgia, trigeminal; Paralysis, facial
  facial, neuropathy, [Kettel] 207—ab
  facial, surgery of 7th nerve, [Tickle] ★969
  grafts, surgery of 7th nerve, [Tickle] ★969
  lesions, internal fixation of bone and neurorrhaphy, [Massie] 500—ab
  Paralysis: See Paralysis
  peripheral, cancer of, [Naffziger & Boldrey] ★96
  Reflexes: See Reflex
  Sciatic: See Sciatica
  splanchnicectomy, lumbodorsal, [Freis] 205—ab
  splanchnicectomy, response of blood pressure after, [Lyons & others] ★611
  Surgery: See Neurosurgery
  Syphilis: See Neurosyphilis
  trophic, and Dupuytren's contracture, [Reichel] 286—ab
  vagotomy and duodenal ulcer, [Bockus] 297—ab
  vagotomy in peptic ulcer, [Boles] ★532; [Cole] 801—ab
  vagotomy, more about, 255—E
  vagotomy, when to recommend, [Bockus] 298—ab
  vagus, section, [Crandell] 62—ab
  vagus, section in peptic ulcer, [Bockus] ★295; [Walters & others] ★742
NERVOUS SYSTEM: See also Brain; Ganglion; Nerves; Nervous System, Sympathetic; Spinal Cord
  Autonomic: See Nervous System, Sympathetic
  cancer, [Naffziger & [illegible]
  Disease: See also [illegible]
  disease (degenera[illegible] [Lewis] ★867
  malnutrition of, [Brain] 583—ab
  Surgery: See subheads under Nerves; Neurosurgery; Sympathectomy

NERVOUS SYSTEM—Continued
  Syphilis: See Neurosyphilis
  symptoms after injecting mercury (reply) [Ulm] 131
  tumors, in children, [Dargeon] *166
NERVOUS SYSTEM SYMPATHETIC, autonomic, [Cohen] 578—ab
  autonomic, and prefrontal lobotomy, [Rinkel] 1004—ab
  block interruption in causalgia, [Shumacker] 902—ab
  block with procaine in apoplexy, [Gilbert & de Takats] *662
  in stomach ulcers, [Fredenhagen] 901—ab
  Surgery: See Sympathectomy
NEURALGIA: See also Causalgia
  brachial, procaine hydrochloride for, (reply) [Krynicki] 72
  postherpetic, treatment, 591
  Sciatic: See Sciatica
  trigeminal, antihistamine drugs, [Horton & Brennan] *870
NEURITIS: See also Neuropathy
  Sciatic: See Sciatica
  treatment, fever in inflammatory polyneuritis, [Rosenhagen] 585—ab
  treatment, vitamin B₁ in postdiphtheritic polyneuritis, [Bøe] 139—ab
NEUROBLASTOMA in children, [Dargeon] *167
NEUROCHEMISTRY, contemporary, suggestive research leads in, [Lewis] *866
NEUROCIRCULATORY Asthenia: See Asthenia
NEUROFIBROMA, of nervous system, [Naffziger & Boldrey] *103
  thoracic, [D'Abreu] 285-ab
NEUROFIBROMATOSIS (von Recklinghausen's Disease), [Naffziger & Boldrey] *103
  in children, [Dargeon] *167
NEUROLOGISTS, Association of, of Northwestern Germany, meeting, 709
NEUROLOGY: See also Nerves; Nervous System
  lecture series, Chicago, 272
  Surgery in: See Neurosurgery
NEUROMA, phantom limb, 1073
NEURONS, tumors, [Naffziger & Boldrey] *103
NEUROPATHY *of facial nerve, Bell's palsy,* [Kettel] 207-ab; [Tickle] *970
NEUROPSYCHIATRY cases, U. S. Army hospitals for, Germany, surveyed, 17
  residencies available, Veterans Administration, 886
  residency training program, Yale, 180
  training, in U. S. Army, 192
NEUROPSYCHOSIS: See Psychoneurosis
NEUROSIS: *See Psychoneurosis*
  Cardiac: See Asthenia, neurocirculatory
NEUROSURGEONS, aid to, in Europe, 787
NEUROSURGERY: See also Brain surgery; Sympathectomy
  development and progress, 1050-E
NEUROSYPHILIS: See also Dementia Paralytica; Tabes Dorsalis
  treatment, malaria, availability, 193
  treatment, penicillin, [Worster-Drought] 137-ab; *877
  treatment, penicillin alone, [Stokes] 1065-ab
  treatment, penicillin with and without malaria, [Curtis] 283-ab
NEUTRON Rays: See Cyclotron
NEUTROPENIA: See also Agranulocytosis, Acute
  cyclic, [Reimann] *241
NEVUS, Moles and Melanoma (film review), 420
NEW AND NONOFFICIAL REMEDIES: See American Medical Association; under names of specific drugs
NEW ENGLAND Medical Center receives gift of $300,000, 272
NEW GROWTHS: See Tumors
NEW ORLEANS *Medical and Surgical Journal*: See Journals
NEW YORK: See also Columbia; Cornell
  Academy of Medicine (symposium on diagnosis of virus and rickettsial infections) 49; (lectures for laymen) 123
  Greater New York Fund, report, 888
  League for Hard of Hearing, (hearing aids for children), 49
  newborn *mortality* and morbidity with continuous caudal analgesia, in, [Hingson & others] *221
  State Medical Journal not member of Cooperative Medical Advertising Bureau, 399; 400-E
  state 3 reports on problems of aging, 180-E
NEWBORN: See Infants, Newborn
NEWSPAPERS: See Journals
NIACIN amide: See Acid, nicotinic
NICOLAS-Favre-Durand Disease: See Lymphogranuloma, Venereal
NICOTINAMIDE: See Acid, nicotinic
NICOTINIC ACID: See Acid
NIGHT calls, public wants a doctor when they want him, 695-E
NIKETHAMIDE (coramine) cardiac stimulant or coronary dilator? (discussion) 1031-ab
NITRATES, in water, methemoglobinemia in infants from, [Stafford] 209-ab
NITROGEN compounds, neurochemistry, [Lewis] *869
  Output: See Urine
NITROGEN MUSTARD (B-chloro-ethyl amines)
  treatment of Hodgkin's disease, lymphosarcoma and leukemia, [Wintrobe] 350-ab
  treatment of leukemia, [Wilkinson] 138—ab; [Haden] 309-ab
  treatment of lymphatic diseases, [Haden] 310-ab
  treatment of mycosis fungoides, [Kierland] 501-ab
  treatment of neoplastic disease, [Rhoads] *306
  treament vs. urethane of Hodgkin's disease, [Jacobson] *95
NITROPHENOLS, alkyl, toxicologic studies, [Spencer] 1069-ab
NOCARDIOSIS, simulating pulmonary tuberculosis, [Glover & others] *172
NOISE: See also Sound
  industrial, and hearing, [Maehle] 899-ab
NOLAND, LLOYD, resigns A. M. A Judicial Council, 833-OS
NOMENCLATURE: See Terminology
NONIDEZ, JOSE F., death, 631
NORTHWESTERN University (fellowship in allergy) 338; (Medical School to televise A. M. A. Annual Session) 989-OS
NOSE: See also Nasopharynx
  Accessory Sinuses: See Sinusitis, Nasal
  cancer, prosthesis for, 657
  Colds: See Colds; Hay Fever; Rhinitis
  dripping, early sign of hunger edema, [van der Hal] 129-ab
  intranasal inactive influenza virus, [Quilligan] 579-ab
  Nebulizer Nasal Premo, 769
  radical cauterization of nostrils in hay fever (reply) [Kaufman] 592
  rubbing as mannerism in child with allergic rhinitis, [Criep] *601
  spraying with boric acid, 512
NOSTRILS: See Nose
NOVOCAIN: See Procaine Hydrochloride
NUCLEAR Power: See Atomic Energy
NUPERCAINE *Anesthesia*: *See Anesthesia*
NURSERY: See also Hospitals, nursery
  ventilation and air borne infections, 141
NURSES: See also Nursing
  anesthetist, Southern Surgical Association resolution on, [Blalock] 279-C
  anesthetists, American College of Surgeons resolution approves, 839
  anesthetists, article in lay press condemned by A. M. A., 834-OS
  Army, corps reserve, 835
  dermatitis from streptomycin develops in, [Strauss] 61—ab; [Rauchwerger & others] *611
  examination for regular corps of USPHS, 886
  homes, U. S. government sells 108; 191—OS
  student, BCG vaccination, Cook County Hospital, [Rosenthal & others] *74
  student male, course for, N. Y. C., 888
  training, A.M.A. resolution on proper intergration of, 188; 268
NURSING: See also Nurses
  homes, Illinois, 1105
  National Organization for Public Health Nursing, Miss Fillmore director, 339
  problems, [Bortz] 183
  problems, A.M.A. committee report (Murdock) 185; 258; 475; *(Joint Committee report)*, 779-OS
  public health, services, Minn., 1106
  school of, in Mexico, 479
NUTRITION: See also Diet; Food; Infants, feeding
  A. M. A. Council on: See American Medical Association
  A. M. A. 10-point national health program, 261
  British Journal of Nutrition, new quarterly, 893
  control of viral disease, [Rivers] 292-ab
  Deficiency: See also Scurvy; Starvation; Vitamins deficiencies
  deficiency and hypogonadism, [Biskind] 579—ab
  Edema: See Edema
  foods for emergencies, [Wilder & Keys] *322; 330-E
  Foundation award for outstanding work in human nutrition, 476
  general, and fat, [Scheer] 424-ab
  HANDBOOK OF NUTRITION, (foods of plant origin) [Maynard & Nelson] *1043
  Institute of Human Nutrition, purchase building for, Chicago, 565
  malnutrition of nervous system, [Brain] 583—ab
  relation to drug therapy, [Elvehjem] *915
  resistance to virus infection, [Elvehjem] *918
  Spanish Congress of, at Saragossa, Oct. 26-30, 128
  status in Puerto Rico and Virgin Islands, [Irons] *980
  status in rural Puerto Rico, [Robinson] 846-ab
  status of Mexican Indian, [Miranda] *542
NUTRITION—Continued
  value of lactalbumin superior to casein, 558—E
  Vitamins in: See Vitamins
NUTS: See also Peanuts
  nutritive value, [Maynard & Nelson] *1015
NYE, ROBERT N. memorial study of Massachusetts General Hospital, 911

O

OAK, Poison: See Rhus
OATS, *nutritive value,* [Maynard & Nelson] *1015
OBESITY at puberty, [Hurxthal] *12
  in childhood and adolescence, [Graham] 903—ab
  treatment, endocrine products useful, [Thompson] 320-ab
  treatment, sale of "over the counter" items (Council discusses), 692
OBITUARIES: See list of Deaths at end of letter D
OBSTETRICIANS, aid in reducing mortality from premature birth, [Koch & others] *217
OBSTETRICS: See also Abortion; Cesarean Section; Labor; Pregnancy; Puerperium
  Anesthesia in: See Anesthesia
  Argentine and Uruguayan Congress of, 278
  International Congress on, N.Y., 1058
OCCUPATIONAL Dermatoses: See Industrial Dermatoses
  Disease: See Industrial Diseases
OCCUPATIONAL THERAPY, department anniversary, 636
  needs research, 151-ab
  reclassify therapists, 121
O'CONNOR, BASIL, president of American Red Cross honored, 703
OCULAR Symptoms, Test: See Eyes; Vision
ODOR, body, 810
OFFICE of Scientific Research and Development abolished, 119-OS
OFFICERS: See Army, U. S.; Navy, U. S.; World War II, medical officers
OIL: See also Cod Liver Oil
  Mineral: See Petrolatum, liquid
  of Chaulmoogra: See Chaulmoogra oil
  pustules, epidemic, Belgium, 842
  shortage, [Wilder & Keys] *326
  vegetable, nutritive value, [Maynard & Nelson] *1048
OINTMENT: See Penicillin; Sulfonamide
OLD AGE: See also Physicians, veteran
  advisory committee on geriatrics, N. Y. C., 195
  anemia (secondary), 1073
  diabetes mellitus (low grade) in man aged 74, 216
  gastroduodenal ulcer in elderly, [Spang] 903—ab
  little strokes, 590
  osteoporosis, (reply) [Splithoff] 1118
  Pennsylvania State Medical Society honors centenarian, 566
  peptic ulcer in, outset, [Rafsky & others] *739
  problems of aging, grant by Rockefeller Foundation to Columbia for research, 339
  problems of aging, New York State study, 180—E
  urinary infections in, chemotherapy, [Hewitt] 717—ab
OLEOMARGARINE, margarine and growth of children, [Leichenger & others] *388
OLIGODENDROGLIOMA of nervous system, [Naffziger & Boldrey] *99
ONCHOCERCIASIS: See Filariasis
OOPHORECTOMY: See Ovary excision
OPERATION: See Surgery; under names of specific organs and diseases
  Early Rising after: See Convalescence
OPHTHALMIA neonatorum: See Conjunctivitis, infectious acute, in newborn
OPHTHALMOLOGY: See also Eyes; Vision
  Clinics, Mich., 837
  Ophthalmological Society of Australia invitation to A.M.A. Section on Ophthalmology, 476
  Registry of Ophthalmic Pathology, 1063
  symposium, by Mt. Sinai Hospital, 1107
OPHTHALMOPLEGIA: See Eyes paralysis
OPIUM: See Morphine
ORAL Cavity: See Mouth
ORANGE juice, complaints allegedly due to excessive amounts, 432
ORATIONS: See Lectures
ORBIT, tumors, in infants and children, [Dargeon] *463
ORCHIECTOMY: See Testis excision
ORGANIZATIONS: See Societies, Medical; list of Societies at end of letter S
ORGANIZED Medicine: See American Medical Association; Societies, medical
ORNITHOSIS: See Psittacosis
ORTHOPEDICS: See also Bones; Foot; Fractures
  Surgery, American Board of: See American Board
  traction on skeleton, 346; 794

ORTHOPTICS, technicians, examination, 787
  visual training for, [Hildreth] 948—ab; 1100—E
OSLER, SIR WILLIAM, 100th anniversary of birth, 483
OSSIFICATION: See Calcification
OSTEOMA, osteoid, [Sherman] 500—ab
OSTEOMYELITIS, hematogenous, [Domanig] 904—ab
OSTEOPATHY? what is? 986—E
OSTEOPOROSIS, senile, (reply) [Splithoff] 1118
  spinal, of unknown cause, [Burrows] 426—ab
OTALGIA: See Earache
OTARION Hearing Aid Model El, 108
OTOLARYNGOLOGY: See Ear; Larynx
OVARY: See also Ovulation
  cancer, [Miller] ★163
  congenitally aplastic, [Lisser] 423—ab
  Excision: See also Castration
  excision disabling bleeding after oophorectomy, 511
  what's new in endocrinology, [Thompson] ★317
OVEREXERATION: See Strain
OVERHOLSER, WINFRED, charges mental hospitals are financially starved, 270—OS
OVERVENTILATION: See Respiration, hyperventilation
OVERWEIGHT: See Obesity
OVIDUCTS, cancer, [Miller] ★163
  inflammation, penicillin injected into adnex for salpingitis, [Roux] 847—ab
OVULATION, twin pregnancy and period of insemination after, 144
  without menstruation, 591
OXFORD University: See University
OXIDATION, role of acetic acid in metabolism, 771—E
OXIDIZED brucella vaccine, [Griggs] ★911
  cellulose, N.N.R., (description) 829; [Johnson & Johnson] 829
  gauze to control hemorrhage from major vessel, [Stewart & Cianos] ★932
OXOPHENARSINE HYDROCHLORIDE treatment plus penicillin of early syphilis, [Willcox] 212—ab
  treatment of mal del pinto, [Varela] 845—ab
  treatment of Reiter's disease, [Khoury] 135—ab
OXYGEN: See also Oxidation; Oxidized
  in Blood: See Blood
  predelivery, given to mother to prevent asphyxia of newborn, [Bushnell] 1000—C
  Quotient: See Metabolism, basal
  tent, Continentalair Iceless, 555
  treatment, when will it help patients with heart disease? (discussion) 1026—ab
OXYURIASIS, treatment of pinworm during pregnancy, 434

P

PACIFIC ISLANDS, checking spread of yaws, by U. S. Navy, 332—E
PADEREWSKI Foundation: See Foundations
PAGNIEZ, PHILIPPE, death, 945
PAIN: See also Arthralgia; Backache; Headache; Neuralgia; Sciatica; under names of specific organs and regions
  Burning: See Causalgia
  Relief of: See also Anesthesia; Nervous System, Sympathetic, block
  relief of, in intractable pelvic cancer with caudal anesthesia, 792
  relief of, after injury to testicle, by manipulating of spine, 592
  relief of inoperable cancer, 145
  relief of, methadon, [Troxil] ★920
  relief of, methadon in bone and joint disorders, [Ishmael] 801—ab
PAINTER, use of BAL in lead poisoning, (correction) 50
PAINTING: See Physicians, avocations
PALESTINE, foreign letter from, 344
PALMER, WALTER W., portrait, 482
PALSY: See Paralysis
  Bell's: See Neuropathy of facial nerve
PALUDRINE in malaria treatment, 345; [Woodruff] 427—ab
PAMAQUINE, toxicity, [Chen] 208—ab
PAN AMERICAN: See also Inter-American; Latin America
  doctors' club first scientific session, 340
PANARTERITIS in allergic persons, [Miale] 1067—ab
PANCREAS: See also Diabetes Mellitus
  cancer, [Brunschwig] ★28
  cancer of islets of Langerhans, [Gordon] 63—ab
  Secretion: See Lipocaic
PANTOYLTAURINE, [Elvehjem] ★918
PAPANICOLAOU stains for gastric contents, [Campbell] 1114—ab
  test for uterine cancer, 331—E; (reply) [Davidson] 711—C
PAPAVERINE, safe dosage range; technic for giving intravenously, 72
  treatment of cerebral angiospasm, [Russek & Zohman] ★930
PAPAVERINE—Continued
  treatment of heart disease, value, (discussion), 1032—ab
[illegible] See National Health
[illegible] Duodenum
[illegible] ACID: See Acid, *p*-amino-benzoic
PARACENTESES, Crosby-Cooney glass button operation for intractable ascites, [Lord] ★767
PARAFFIN, Liquid: See Petrolatum, liquid
PARALYSIS: See also Paraplegia
  Agitans: See Parkinsonism
  cerebral palsy demonstration clinic, N. D., 482
  cerebral palsy, Joint Legislative Committee to Study Problem of, N. Y., 1056
  etiology, cerebral hemorrhage, 658
  Facial, Bell's Palsy: See Neuropathy of facial nerve
  facial, correction, [Adams] 496—ab
  facial, Meikersson's syndrome, [Kettel] 133—ab
  facial, surgery of 7th nerve, [Tickle] ★969
  General: See Dementia Paralytica
  hydraulic lift for patients with partial leg paralysis, [Wesselhoeft] 56—C
  Infantile: See Poliomyelitis
  laryngeal, cancer causing, [Hassin] 134—ab
  Ocular: See Eyes, paralysis
  periodic, in exophthalmic goiter, [Seed] 722—ab
  treatment, prostigmine, [Coodley] 646—ab
PARANASAL Sinuses: See Sinusitis, Nasal
PARAPLEGIA, decubitus ulcers in, [Kostrubala] 210—ab
  hydraulic lift for patients, [Wesselhoeft] 56—C
  journal for paraplegics: *Cord*, 53
PARASITES, diseases due to, laboratory course on, 886
  Intestinal: See Ancylostomiasis
PARATHION, Council statement, 471
PARATHYROID extract and diuresis, [Moehlig] 846—ab
  hyperparathyroidism, [Rogers] 61—ab
  insufficiency, calcification of cerebral ganglions, [Camp] 650—ab
  what's new in endocrinology, [Thompson] ★316
PARATHYROIDECTOMY in arteritis obliterans, [Welti] 904—ab
PARATYPHOID, immunizations, status of mixed vaccines (Council discusses), 692
PARAVOX Hearing Aid, Model XTS, 109
PARENTHOOD, Planned: See Contraception
PARENTS: See Maternity; Paternity
PARESIS: See Dementia Paralytica
PARESTHESIA of legs; Madrid symptomatic [illegible] 8—ab
[illegible] Syndrome: See Wolff
[illegible] s of developing year later after encephalitis, 72
PAROTID GLAND: See also Parotitis
  inflammations, [Furstenberg] ★2
  swelling, 511
PAROTITIS, EPIDEMIC, meningitis, diagnosis by serologic tests, [Smadel] ★1080
  meningoencephalitis after, [Hodenpijl] 505—ab; [Eberlein] 580—ab
PARRAN, THOMAS, (surgeon general to be succeeded by Dr. Scheele) 563; 630—OS; (pronouncement, is there a shortage of physicians?) 626—E; 834
PARROTS Fever: See Psittacosis
PARTURITION: See Labor
PASSANO Foundation: See Foundations
PASTEURELLA Tularense Infection: See Tularemia
PATELLA, chondromalacia, [Bronitsky] 500—ab
PATERNITY: See also Families
  investigation, Brazil, 201
PATHOLOGISTS, international society established, 340
PATHOLOGY: See also Disease
  A.M.A. resolutions on practice of, by hospitals, 190; 260
  American Registry of, 1063
  Army Institute of, 1053; 1103
  digestive, Spanish congress, Saragossa, Oct. 26-30, 128
  Journal of Clinical Pathology, new journal, 127
PATIENTS: See Disease; Hospitals; Medical Service; Surgery; under names of specific disease
  Early Rising after Opperation: See Convalescence
PEACHES, nutritive value, [Maynard & Nelson] ★1048
PEANUTS, foods for emergencies, [Wilder & Keys] ★324
PEDIATRICIANS, aid in reducing mortality from premature birth, [Koch & others] ★218
  common behavior disturbances in first 2 years of life, [Spock] ★811
  concerned with psychologic factors, 477—OS
  Congress of French-Speaking Pediatricians (12th), 841
PEDIATRICS: See also Children; Infants; Pediatricians
  Cornelian Corner, 881—E
PEDICULICIDE, isobornyl thiocyanoacetate-technical, N.N.R., (description) 1099; (Wyeth) 1099
PEDICULOIDES ventricosus: See Acarodermatitis urticarioides
PELLAGRA, malnutrition of nervous system, [Brain] 583—ab
PELVIS, cancer (intractable), caudal anesthesia to relieve pain, 792
  peripelvic lymphatic cysts of kidney, [Scholl] ★4
PEMPHIGUS, etiology, diagnosis and therapy, [Macht] 1114—ab
  vulgaris, [Barnard] 136—ab
PENICILLIN, action, cytochemical mechanisms, [Pratt] 899—ab
  Calcium: See also Penicillin treatment
  calcium, and streptomycin sulfate mixture, consequent formation of calcium sulfate, (replies) [Coghill; Rieveschl] 956
  calcium ointment, N.N.R., (Squibb) 985
  calcium tablets, N.N.R., (Upjohn) 985
  caronamide and staticin, (Council report) 251
  caronamide as adjuant for, in endocarditis, [Boger] 844—ab
  G: See also Penicillin treatment
  G potassium in oil and wax, N.N.R., (Premo] 933
  G potassium, N.N.R., (Abbott) 985
  G sodium in oil and wax, N.N.R., (Premo; Squibb; Upjohn) 985
  G sodium, nebutabs crystalline, N.N.R., (Premo) 933
  in Blood: See Blood
  Sodium: See also Penicillin treatment
  sodium, N.N.R., (Merrell) 985
  solutions, preservation, [Ramon] 141—ab
  sulfonamide synergy, [Stewart] 426—ab
  supply, chemical plants leased to manufacturer, 47
  toxicity, ★874
  toxicity, allergic reactions; plea for more accurate reports; can different menstruum be made, [Keefer] 321—ab
  toxicity, arthralgia, 732
  toxicity, benadryl and pyribenzamine for reactions, [Dreisbach] 579—ab
  toxicity, exfoliative dermatitis, [Derzavis] 1070—ab
  toxicity, fatal arterial accidents in, [Courty] 505—ab
  toxicity, occupational dermatitis, 730
  toxicity, tests for sensitivity, 70
  toxicity, tolerance to, [Keefer] 321—ab
  Treatment: See [illegible] Brain suppuration; [illegible] Gonorrhea; Hanc[illegible] Leprosy; [illegible]osyphilis; Smallp[illegible] Syphilis
  treatment, [illegible] in blood, 1117
  treatment, effect of impurities, [Hobby] 63—ab
  treatment, fate of endocardial vegetations, [Carter] 495—ab
  treatment, in congestive heart failure with sodium penicillin, [Barnes] 304—ab
  treatment, in surgery of lower bowel, [Bacon & Rowe] ★975
  treatment, increasing patient's tolerance, 434
  treatment, inhalation of aerosol, 732
  treatment, instillations in bronchopulmonary suppurations, [Benard] 726—ab
  treatment, leptospirae sensitivity to, [Wylie] 138—ab
  treatment, local, in bronchopulmonary suppurations, [Metras] 951—ab
  treatment, local injections, of adnexa, [Roux] 847—ab
  treatment, local (spray and lozenges) of diphtheria carriers, [Levy] ★855
  treatment of no value in brucellosis, [Griggs] ★911
  treatment of other disease, effects on syphilis, ★874
  treatment of pneumonias, greater incidence of lung abscesses after, [Keefer] 320—ab
  treatment of syphilis with penicillin G, 4 plus Wassermann in rheumatic fever, 956
  treatment of syphilis with calcium penicillin, [Koch] 136—ab
  treatment of tenosynovitis treated with systemic penicillin, [Cruickshank] 426—ab
  treatment, oral, efficacy, [Keefer] 321—ab
  treatment, oral, in infants, [Husson] 719—ab
  treatment, oral, in pneumonia, [Anderson] 802—ab
  treatment, oral, in rheumatic fever, [Milzer & others] ★536; [Mallner] 719—ab
  treatment, orally, absorption, [Stewart] 846—ab
  treatment plus autohemic therapy in phlebitis, [Hussenstein] 803—ab
  treatment plus malaria of neurosyphilis, [Curtis] 283—ab
  treatment plus oxophenarsine for early syphilis, [Willcox] 212—ab
  treatment plus pentose nucleotide and liver extracts for agranulocytosis, [Muller] 951—ab

PENICILLIN—Continued
  treatment plus streptomycin combined solutions, preservation of, [Ramon] 141—ab
  treatment plus streptomycin, mixed in same syringe? [Keefer] 320—ab
  treatment plus streptomycin, possible incompatibility; formation of calcium sulfate (replies) [Coghill; Rieveschl] 956
  treatment plus sulfonamides for sore throat, [Keefer] 320—ab
  treatment plus sulfonamides in empyema and lung abscess, 127
  treatment, prophylactic in prolonged labor. 145
  treatment, simple method for prolonging action, [Carlinfanti] 726—ab
  treatment, staphylococci resistant, [Barber] 652—ab
  treatment, to prevent infant blindness, 1102—OS
  treatment, what dilutions for intraspinal injections? [Keefer] 321—ab
PENICILLINASE, do body cells develop? [Keefer] 320—ab
PENIS, Erection of: See Priapism
  herpes, 72
PENNSYLVANIA: See Philadelphia
PENSIONS, approves allowences for disabled veteran's dependents, 1052—OS
  armed forces retirement pension systems, 630—OS
  defense secretary recommends reexamination of pensioned officers, 698—OS
  increase for veterans of Spanish-American wars.
PENTAQUINE, toxicity, [Chen] 208—ab
PENTOSE nucleotide plus penicillin for agranulocytosis, [Muller] 951—ab
PENTOTHAL, hepatic destruction, [Shideman] 1066—ab
PEPTIC ULCER, A.M.A. Section joint symposium on: [Feldman *736; [Rafsky & others] *739; [Walters & others] *742; [Marshall & Welch] *748; [Thompson] *752; (discussion) 759
  blood perfusion impaired in duodenal and ventricular ulcers, [Hoffman] 286—ab
  complications, treatment, [Thompson] *752
  diagnosis, backache at night, 591
  duodenal, statistical study of life cycle, [Feldman] *736
  film review, 202
  gastric, and hemoconcentration, 1051—E
  gastric chronic, histologic study, [Betz] 801—ab
  gastroduodenal, in elderly, [Spang] 903—ab
  hemorrhage, [Thompson *751
  hemorrhage, 15 years experience with free feeding, [Meulengracht] 1066—ab
  hemorrhage, stop bleeding by fibrin or other coagulants orally, 1117
  in aged, [Rafsky & others] *739; [Spang] 903—ab
  pathogenesis, [Boles] *528
  perforated, medical treatment, [McClintock] 581—ab
  perforation, [Thompson] *756
  surgical treatment, appraisal, [Boles] *528
  surgical treatment, results for gastric ulcer, [Marshall & Welch] *748
  surgical treatment, subtotal gastrectomy for gastric ulcer, [Ransom] 645—ab
  surgical treatment, vagotomy, 255—E; [Cole] 801—ab
  surgical treatment, vagotomy and duodenal ulcer, [Bockus] 297—ab
  surgical treatment, vagotomy and hypertension, [Bockus] 298—ab
  surgical treatment, vagotomy, when to recommend? [Bockus] 298—ab
  surgical treatment, vagus section, [Crandell] 62—ab; [Bockus] *295; [Walters & others] *742
  treatment, amino acids in diet, [Bockus] *293
  treatment, antacids, effective, [Bockus] 297—ab
  treatment, antiulcer factors (anthelone) in urine extracts, [Bockus] *295
  treatment, any one procedure cure? [Bockus] 298—ab
  treatment, appraisal, [Boles] *528
  treatment, bellergal, [Fredenhagen 904—ab
  treatment, cellulose in diet, [Pezold] 585—ab
  treatment, enterogastrone, how does it affect healing? [Bockus] 298—ab
  treatment, histamine, [Bockus] 299—ab
  treatment, hydrochloric acid, [Bockus] 298—ab
  treatment, medical, [Kahrs] 210—ab
  treatment, medical, vs. prevention, [Althausen] 899—ab
  treatment of complications, [Thompson] *752
  treatment, protein hydrolysates, [Bockus] 299—ab
  treatment, recent advances: urogastrone, enterogastrone, anthelone, etc., [Bockus] *293, *295
PERIARTERITIS nodosa, necrotic arteritis after sulfonamides, [Van Rijssel] 141—ab
PERICARDITIS, constricting chronic, recovery after partial pericardiectomy, [Paulino] 804—ab
PERINEUM, pilonidal sinus cysts located in, [Smith] *973
PERIODIC DISEASE, [Reimann] *239
PERIODIC PARALYSIS: See Paralysis
PERIODICALS: See Journals
PERIOSTEUM to repair fascial defects in paratibial region, [Giannestras] 496—ab
PERITONEUM: irrigation "artificial kidney," [Connolly] 209—ab; [Bassett] 576—ab; [Murray] 716—ab
  surgery, button operation for ascites, [Welch] 649—ab; [Lord] *767
  Tuberculosis: See Peritonitis, tuberculous
PERITONITIS, benign paroxysmal, periodic disease, [Reimann] *239
  streptomycin used intraperitoneally, 1071
  tuberculous, streptomycin in, 732
  with ascites and eosinophilia, [Laederich] 586—ab
PERNICIOUS ANEMIA: See Anemia, Pernicious
PERNIO: See Chilblains
PERSONALITY: See *also* Psychosomatic Medicine
  change after prefrontal leukotomy, [Frankl] 721—ab
  chronic illness and, [Ruesch & Bowman] *851
  encephalitis effect on, in children, [Greenebaum & Lurie] *923
PERTUSSIS: See Whooping Cough
PESSARY, complications due to, 216
PETERS, GEORGE S., personal, 781
PETHIDINE: See Meperidine
PETIT MAL: See *Epilepsy*
PETROL: See Gasoline
PETROLATUM, liquid, mineral oil, health hazard, [Browne] 351—ab
PETS: *See Animals*
von PFAUNDLER, MEINHARD, death at 75, 201
PFIZER (Chas.) & Co., chemical plant leased *to, for penicillin manufacture,* 17
PHANTOM LIMB: See Amputation
PHARMACEUTICALS: See also Drugs; *Pharmacopeia; Pharmacy; etc.*
  American Pharmaceutical Manufacturers Association, (Scientific Award to A. M. A.) 42—E; [Bortz] 183; (papers read at *ceremony)* [Ivy] *909; [*Elvehjem*] *915; (Pharmaceutical-Medical Research Foundation) 42—E
  Medical Research Foundation, 42—E
  specialties, prescribing, unavailability of drug product in bulk forms, 935—E
PHARMACIST examination by USPHS, 991
PHARMACOPEIA, U. S., Revision Committee, closer cooperation with, (Council discusses), 692
PHARMACY, A. M. A. Council on: See American Medical Association
  drug store depots, Minn., 48
  home town plan, 193
PHARYNGITIS: See also Nasopharyngitis; Nasopharynx
  virus, diagnosis and etiology, [Dingle] *1084
PHASE microscopy and its photographic application, 995
PHENARSINE: See Oxophenarsine
PHENOBARBITAL sodium with benzyl alcohol, N.N.R., (Warren-Teed) 933
PHENYLALANINE, phenylpyruvic oligophrenia, 629—E
  relation to growth, [Elvehjem] *917
PHI Beta Pi Lecture: See Lectures
  Lambda Kappa Lecture: See Lectures
PHILADELPHIA, newborn mortality and morbidity with continuous caudal analgesia, [Hingson & others] *221
PHILOSOPHY of a medical service plan, [Feierabend] *57
PHLEBITIS: See also Thrombophlebitis
  treatment for edema of lower extremity, 144
  treatment, penicillin and autohemic therapy, [Hussenstein] 803—ab
PHLEBOTHROMBOSIS: See Thrombosis, venous
PHONOGRAPH recordings of A. M. A. centennial sermons, 269
  records, supersonic reproduction on, 199
PHOSPHORUS, radioactive, for chronic myelogenous leukemia, [Lawrence & others] *672; 696—E
PHOTOGRAPHY: See also Moving Pictures
  application of phase microscopy, 995
PHOTOSENSITIVITY: See Light sensitivity
PHOTOSYNTHESIS: See also Chlorophyll
  neurochemistry, [Lewis] *867
PHYSICAL DEFECTS: See also Physical Fitness
  high incidence noted in selective service statistics, 629—E
  Rehabilitation: See Rehabilitation
PHYSICAL EDUCATION AND TRAINING: See also Athletics; Exercise; Health Education
  American Association for resolution on eliminating boxing from their interscholastic programs, 907
  program, cooperation of physician in, (Joint Committee report), 778—OS
PHYSICAL EXAMINATION: See also Physical Defects; Physical Fitness; Medicolegal Abstracts at end of letter M
  of immigrants, A. M. A. resolutions on, 190; 260
PHYSICAL EXAMINATION—Continued
  periodic, of children; follow-up of medical recommendations; Chicago, [Hardy] *20
PHYSICAL FITNESS: See also Physical Defects
  as physicians see it, 771—E
  Subcommittee of Baruch Committee on Physical Medicine report [Darling & others] *761; 771—E
PHYSICAL MEDICINE, A. M. A. Section on, establishment, 187
  Baruch Committee on Physical Medicine report on physical fitness, [Darling & others] *761; 771—E
  fundamentals of interest to general practitioners, [Horvath] *605
  transcriptions available, 882—OS
PHYSICAL REHABILITATION: See Rehabili*tation*
PHYSICAL STRAIN: See Strain
PHYSICAL THERAPY: See Diathermy; Heat, therapeutic use; Physical Medicine; Radium; Roentgen Rays; Ultraviolet Rays; under names of specific diseases
PHYSICAL TRAINING: See Physical Education
PHYSICIANS: See also Medical Jurisprudence; Medical Service; Medicine; Surgeons; etc.
  aid to neurosurgeons in Europe, 787
  Alien: See *Physicians,* foreign
  American College of Chest Physicians, (fellowship examinations) 995
  Aviation Medical Examiners: See Aviation
  avocations, exhibit of art of American physicians in Argentina, 339
  avocations, Los Angeles County Medical Garden Club show, 1105
  Award to: See Prizes; World War II, Heroes
  British, reject nationalized medicine, 628—E; 640
  Consulting: See Consultation
  cooperation in school health and physical education program (Joint Committee report), 778—OS
  Courses for: See *Education, Medical,* graduate
  Danish, rural and city, in 1947, 893
  Deaths: See also Deaths at end of letter D
  deaths of, in 1947, 252—E
  deaths of, in U. S. vs. Great Britain, [Hoff & Apperly] 795—C
  Demobilized: See World War II, medical officers
  Directory of: See American Medical Directory
  Doctor's Day, La., 887
  Education of: See Education, Medical
  Ethics: See *Ethics, Medical*
  experts say physicians are unprepared for *atomic attack,* 1052—OS
  Fees: See Fees
  Fellowships: See Fellowships
  Fellowships in A. M. A.: See American Medical Association
  Foreign: See also other subheads under Physicians
  foreign, bill to install refugee doctors on Medical Register, 199
  gasoline concession to, England, 199
  Graduate Courses; Work: See Education, Medical, graduate
  Greenwich Committee for Foreign Relief aids Vienna patients, 1055
  Heroic Action: See World War II, Heroes
  Honorably Discharged: See World War II, medical officers
  in Service: See Army, U. S.; Navy, U. S.; World War II, medical officers
  Income Tax: See Tax, Income
  International Spanish Speaking Association of Physicians, meeting, 124; 888
  "Killed in Action": See *World War II*
  Lectures Honoring: See Lectures
  Licensing: See *Licensure*
  Medical Missionaries: See Missionaries
  Medals for: See World War II, Heroes
  Memorial: See also Fellowships; Lectures; Prizes
  memorial: D. Chester Brown, 1105
  memorial, Nye (Robert N.) study at Massachusetts General Hospital, 941
  memorial, physiology professorship to Dr. B. F. Hembleton, 123
  memorial post of American Legion to Dr. Walter F. Bartz, 195
  memorial to Dr. William A. O'Brien, 272
  Military Service: See Army, U. S.; World War II
  night calls, public wants a doctor when they want him, 695—E
  Pan-American doctors' club first scientific session, 340
  Payment for Services: See Fees
  physical fitness as physicians see it, 771—E
  Polish, move institution at U. of Edinburgh to Puerto Rico? 1101—E
  Portraits: See Portraits (cross reference)
  positions open for psychiatrists, USPHS, 479
  positions open, in Veterans Administration, 885

PHYSICIANS—Continued
positions open, outline plan to replace in Veterans Administration, 1052—OS
Practicing: See also Medicine practice; Physicians, supply
practicing, A. M. A. Medal for General Practitioner, (to Dr. Sudan) 178—E; 181—OS; 184—OS; (tribute to) 190; 191; 269; 475
practicing, and virus diagnostic laboratory, [Smadel] ★1079
practicing, clinic for, Philadelphia, 566
practicing, lectures for family doctors, N. Y. C., 635
practicing, new army chief may seek aid of, 561—OS
practicing, physical medicine fundamentals for, [Horvath] ★605
practicing, selling price of medical practice, [Dickinson] 333—OS
practicing, Specialty Board for General Practitioners (Joint Committee report), 778—OS
Prescriptions: See Prescriptions
Prizes for: See Prizes
Refugee: See Physicians, foreign
Registration: See Licensure
Residencies; Resident: See Residents and Residencies
rural, first physician under program enters rural practice, Miss., 272
rural, in Denmark, 893
rural, joint fund to help train country doctors, Ill., 48
schools and 403—OS
Separated from the Service: See World War II, medical officers
Service by: See Medical Service; Medical Service Plans
Specialization by: See Specialties
supply, debate cause of shortage in Maryland, 1102—OS
supply, factors affecting need for, [Robinson] 1000—C
supply, in Denmark, 893
supply, in Puerto Rico, [Irons] ★981
supply, is there a shortage? pronouncement by Dr. Thomas Parran, 626—E; 834
supply, shortage in armed forces on increase, 834—OS
supply, survey of practicing physicians, W. Va., 636
supply, 1200, now in Bavaria, 201
Training See Education, Medical
veteran, (Dr. J. M. Palmer) 122; (Dr. P. L. Simond dies at age of 89) 200; (Prof. von Pfaundler dies at 75) 201; (Sir Charles Sherrington's 90 birthday) 277; (Dr. Cornelius A. Harper, day honors) 567; (Dr. McElfresh) 839; (20,000 Years of Service, N. Y.) 993; (honor Dr. Williams 54 years in practice) 1057; (honor Dr. Crosby 57 years in practice) 1105
War Service: See World War II
women, first woman to head component society, W. Va., 339
women, great moral struggle: Elizabeth Blackwell, 229—ab
PHYSIOLOGY, professorship, memorial to Dr. B. F. Hambleton, 123
PICTURES: See Moving Pictures; Physicians, avocations; Portraits (cross reference); Television
PIGMENTATION, ocular in workers making hydroquinone, [Anderson] 1005—ab
of conjunctiva from mascara, [Reese] 797—ab
PIGS: See Hogs
PILES: See Hemorrhoids
PILLOWS, Fiberglas-Filled Sleepytime, 398
PILOCARPINE treatment of parotitis, [Furstenberg] ★3
PILONIDAL SINUS cysts, anterior or perineal, [Smith] ★973
PILOTS: See Aviation
PIMPLES: See Acne
PINEALOMAS as cause of diabetes insipidus, [Horrax] 645—ab
PINTA, Mal del Pinto, treatment by mapharsen, [Varela] 844—ab
PINWORM Infection: See Oxyuriasis
PIRQUET Test: See Tuberculin
PITKIN Menstruum: See Heparin treatment
PITOCIN, induction of labor, 1117
PITRESSIN hydration test in diagnosis of epilepsy, [Cappon] 67—ab; 652—ab
test of coronary insufficiency, [Ruskin] 60.—ab
PITUITARY: See also Diabetes Insipidus
acromegaly, 850
Fröhlich's syndrome, [Hurxthal] ★12; 908
growth hormone, use to stimulate growth in boy of 12? 214
hypopituitarism, multiglandular deficiencies secondary to, [Thompson] ★315
irradiation in toxic goiter, [Thompson] ★315
midbrain-pituitary regulation of carbohydrate metabolism, 841
tumors, [Naffziger & Boldrey] ★100
tumors, surgical experience, [Grant] ★668
what's new in endocrinology, [Thompson] ★314
PITYRIASIS or tinea versicolor, 145
PLACEMENT: See Industrial Health
PLACENTA: See Fetus
PLAGUE, [Ruegsegger] 845—ab
Control (film review), 420
control, France, 945
in Brazil, 710
in Hawaii, 839
in U. S., 474—E
infection in wood rats, Calif., 194
PLANES: See Aviation
PLANNED PARENTHOOD: See Contraception
PLANTS: See also Chlorophyll; Ragweeds; Rhus
foods from, [Maynard & Nelson] ★1043
wild, edible, [Wilder & Keys] ★323
PLASMA: See subheads under Blood; Blood Transfusion; Serum
PLATELETS: See Blood platelets
PLEBISCITE, result, National Health Service, England, 893
PLETHYSMOGRAM, [Burch & Ray] ★1011
PLEURA Fistula: See Fistula
tularemia, [Morgan] 350—ab
PLEURISY, Purulent: See Empyema
PLOTZ Foundation: See Foundation
PLUMBISM: See Lead poisoning
PNEUMOCONIOSIS: See Pneumonoconiosis
PNEUMONIA, atypical primary, [Reich] 206—ab; [Knutsen] 847—ab
atypical primary, bronchiectasis after, [Royce] 1005—ab
atypical primary, common virus infections, [Dingle] ★1087
atypical serologic tests for diagnosis, [Smadel] ★1080
enterococcic, [Lüdin] 140—ab
staphylococcus, in childhood, [Guthrie] 584—ab
treatment, penicillin, effects on syphilis, ★874
treatment, penicillin, greater incidence of lung abscess after, [Keefer] 320—ab
treatment, penicillin orally, [Anderson] 802—ab
treatment, polymyxin, [Schoenbach & others] ★1096
treatment, sulfamerazine, [Joules] 802—ab
Virus: See Pneumonia, atypical primary
PNEUMONOCONIOSIS, benign, due to metal fumes and dusts, [Sander] 61—ab
PNEUMOTHORAX in mediastinal emphysema, [Karps & Daue] ★622
PNEUMOTHORAX ARTIFICIAL, sudden death in, [Martinez de Salinas] 506—ab
PODOPHYLLIN treatment of condylomata acuminata, 360
POISON Ivy; Oak: See Rhus
POISONING: See also under names of specific substances as Carbon Monoxide
experimental, thymol turbidity test, 1061
Food: See Food poisoning
Industrial: See Industrial Dermatoses; Industrial Diseases
POLIOENCEPHALITIS, hemorrhagic, Wernicke's encephalopathy, [Brain] 583—ab
POLIOMYELITIS, acute, respirator for, [Gaustad] 355—ab
bulbar, diagnosis, [Boines] 499—ab
complications, bilateral ophthalmoplegia in, [Wright] 205—ab
electroencephalogram, [Pacella] 350—ab
Emerson Lung Immobilizing Chamber, 398
epidemic, Berlin, 201
epidemic, France, 945
epiphysial arrest, 849
etiology: vaccination and injury, [Verjaal] 585—ab
exhibits, 413
in Key West, [Davis] 1067—ab
International Conference (1st), A. M. A. representatives, 475; (program) 483
muscular after-effects, [Knapp) 425—ab
National Foundation for Infantile Paralysis (decade of progress) 339; (research grant to U. of Chicago) 480
patients, follow-up, [Arvola] 286—ab
prevention, what method [Rivers] 292—ab
reports for 1948, 705
research grant to U. of Chicago, 480
research, million for, 636
second attack, [Alves] 723—ab
sick child in, [Platou] 424—ab
tonsillectomy and, [Cunning] 647—ab
treatment, hydraulic lift for patients, [Wesselhoeft] 56—C
treatment, respirator, follow-up, [Ingebrigtsen] 355—ab
virus, distribution, [Wenner] 502—ab
virus found in urine? 70
virus in familial associates, [Brown] 1069—ab
virus in sewage, [Kling] 847—ab
virus, search for extrahuman sources, [Francis & others] ★1088
virus, transmission to animals, 641
virus vaccines, formaldehyde-treated, [Gard] 724—ab
virus, viability, 907
wading tank for patients, Colo., 194
young American crippled by, 883—OS
POLISH physicians move institution at U. of Edinburgh to Puerto Rico? 1101—E
POLLINOSIS: See Hay Fever
POLYCYTHEMIA, treatment, [Haden] 309—ab
treatment, radioactive isotopes, [Haden] ★309
vera, use of atomic energy on blood ailment
sitis
& others] ★1096
POLYNEURITIS: See Neuritis
POLYURIA: See Diabetes Insipidus
POPULATION: See Vital Statistics
PORADENITIS: See Lymphogranuloma, Venereal
PORK: See Trichinosis
POROKERATOSIS, [Jones] 422—ab
PORPHYRIA in extrauterine pregnancy, [Neuweiler] 110—ab
PORPHYRINS, significance of urinary coproporphyrins, 627—E
PORPHYRINURIA: See Urine, porphyrin
PORTER Lecture: See Lectures
PORTRAITS: See under names of individuals as Bassoe; Palmer; West
POSITION Open: See Physicians positions open
POSTGRADUATE Work: See Education, Medical, graduate
POSTMORTEM: See Autopsies
POSTNATAL: See Infants, Newborn
POSTOPERATIVE: See Surgery
POSTPARTUM: See Puerperium
POSTURE, Early Rising After Operation: See Convalescnce
POSTWAR Medical Service, Committee on: See A. M. A. Joint Committee for Coordination of Medical Activities
Planning: See World War II, postwar
POTASSIUM chloride to enhance mercurial diuresis, [DeGraff] ★1026
chloride, use as salt substitute, [Barnes] 301—ab
electrolytes and water in shock, 832—E
permanganate solution to remove stains from skin, [Tuckerman] 643—C
thiocynate in essential hypertension, [Ruskin] 493—ab
POTATOES, foods for emergencies, [Wilder & Keys] ★323
nutritive value, [Maynard & Nelson] ★1046
POTT'S Disease: See Spine tuberculosis
POULTRY, genetic control of lymphomatosis in fowl, 331—E
POWER, Atomic: See Atomic Energy
PRACTICANTES in Puerto Rico, medical mission report, [Irons] ★982
PRACTITIONER: See Physicians
PRATT-McCollum Fund: See Foundations
PRECIPITIN Reaction: See Trypanosomiasis
PREFRONTAL Leukotomy: See Brain surgery
PREGNANCY: See also Fertility; Fetus; Impregnation; Labor; Maternity; Obstetrics; Puerperium; Reproduction
after cesarean section, when is sterilization indicated? 955
age in, stillbirths, 558—E
benadryl effect on, 359
blood sedimentation rate during, 359
blood transfusions in, interval between and birth of erythroblastotic child, [Hellman & Vosburgh] ★79
complications: albuminuria, 358
complications: cancer of cecum, 510
complications: Hodgkin's disease, 146
complications: nephritis, prognosis, 214
complications: pinworm, 434
complications: scleroderma, 433
complications: syphilis, infants born of syphilitic mothers, ★877; ★879
complications: syphilis, retreatment, 146
diagnosis, Galli-Mainini test: male toad test, 346
diagnosis, two hour rat test [Fried] 282—ab
disturbed, hormonal test for fetal death in [Zondek & others] ★965; (correction) 1107
ectopic, [Beacham & others] ★365
ectopic (abdominal), birth by rectum in, [Brown] 502—ab
ectopic, porphyrinuria in, [Neuweiler] 140—ab
estrogens excretion during, 288
Interruption of: See Abortion
Multiple: See Twins
prenatal care, A. M. A. 10-point national health program, 262
Protection from: See Contraception
smallpox vaccination during, cause congenital malformations or miscarriage? 1009
tonsillectomy in, 732
Toxemia of: See also Eclampsia
toxemia of, etiology of, role of blood groups; allergic reaction [Elden] 951—ab
twin, and period of insemination after ovulation, 144
PREMATURITY: See Infants, premature
PREMO, Improved Nebulizer, 108; 769
PREPAYMENT Plans: See Hospitals, expense insurance; Medical Service Plans
PRESCRIPTIONS for veterans, 701
unavailability of drug product in bulk forms, 935—E

PRESERVATION: See Skin grafts
PRESIDENT'S Commission on Higher Education urges federal aid for needy college students, 119—OS
PRESS, International Medical Press, 833—OS
PRESSURE, to prolong action of penicillin, [Carlinfanti] 726—ab
PREVENTIVE MEDICINE: See also Immunization; Vaccination
  A. M. A. 10-point national health program, 261
  Cutter lecture on, 785
  professors, conference, 50
  specialty board, 783
PRIAPISM, acute, in child first symptom of myeloid leukemia, [Borias] 212—ab
PRICE of digitalis glycosides, (discussion) [White] (table) 1028—ab
  selling of medical practice, [Dickinson] 333—OS
PRINTERS strike at A. M. A., 770—E
PRISONERS: See "Crime" under Medicolegal Abstracts at end of letter M
  used in medical experiments, ethics governing, Gov. Green's report, Illinois, ★457
PRIZES: See *also* Fellowships; Lectures; Scholarships
  American Dietetic Association award, 567
  A. M. A. General Practitioner Award, (to Dr. Sudan) 178—E; 181—OS; 184—OS; (tribute to) 190; 191; 269; 475
  American Pharmaceutical Manufacturers Association Scientific Award to A. M. A., 42—E; [Bortz] 183; (*papers read at ceremony*) [Ivy] ★909; [Elvehjem] ★915
  Awards for Distinguished War Service: See World War II, Heroes
  Borden Company Foundation, Inc., undergraduate research awards, 565
  Chicago Surgical Society, 702
  Cincinnati, awards for public service, Ohio, 273
  Cleveland (Clement) cancer award, 993
  Gibbs Medal, 788; 889
  Hess (Elmer), in urology, 636
  Lippincott (*Joseph W.*) Award, 1107
  Lynch (Frank W.) memorial essay contest, 310
  Mead Johnson Award in pediatrics, 482
  National Gastroenterological Association contest and award, 121
  Pan American Medal of National Society for Prevention of Blindness, 271
  Passano Foundation 1948 Award, 1058
  Phi Lambda Kappa, 566
  Province of Quebec, award for papers on shoulder lesions, 568
  Rochester Academy of Medicine, 703
  Rush (Benjamin) awards, 412
  Schering Award, 113
  Seibert Memorial Award, 123
  Snyder (Lillian) Award, 635
  Strong (Richard P.) Medal, 196
  Westinghouse Science Writing Awards, 50
PROCAINE HYDROCHLORIDE, treatment of intractable unilateral cephalalgia, [Haynes] ★538
  treatment of pain in right upper arm; brachial neuralgia, (reply) [Krynicki] 72
  with epinephrine, N.N.R., [Brewer] 471
PROFESSIONS: See Dentistry; Medicine
PROMIN treatment of leprosy, [Faget & Erickson] ★451; 572; 830—E
  treatment of tuberculosis, [Waring] 314—ab
PROMIZOLE treatment of leprosy, [Faget & Erickson] ★151; 830—E
  treatment of miliary tuberculosis, [Lincoln] 1113—ab
  treatment of tuberculous meningitis in children, [Lincoln & others] ★593
  treatment *controls, periodic paralysis in toxic* goiter, [Seed] 722—ab
PROPYLTHIOURACIL *treatment of hyperthyroidism*, [McCullagh] 844—ab
PROSTATE cancer, [Buchert] 649—ab
  cancer, estrogens and orchiectomy in, [Wattenberg] 352—ab
  cancer, estrogen therapy, danger, 592
  cancer, heterologous growth, [Hovenanian] 901—ab
  cancer, *most effective chemical treatment*, [Rhoads] 307—ab
  cancer, perineal prostatectomy for, [Goodyear] 578—ab
  cancer, relation of hormones, [Thompson] ★318
  cancer, treatment, Italy, 792
  hypertrophy, monocytic leukemia appearing as, [Lubin] 135—ab
  Surgery: See also Prostatectomy
  surgery, and heart disease, [Kretschmer & Butler] ★441
PROSTATECTOMY, perineal, for cancer, [Goodyear] 578—ab
PROSTHESIS: See also Limbs, artificial
  appliances for veterans, 991
  for nasal cancer, 657
PROSTIGMINE: See Neostigmine
PROTEIN: See also Amino Acids; Casein; Meat
  biologic availability, 1101—E
PROTEIN—Continued
  deficiency, management in surgical patients, [*Stewart & others*] ★1017
  diet, insufficiency, of Mexican Indian, [Miranda] ★512
  fractionation and electrophoresis, 832—E
  hydrolysate preparations, labeling, [Cherkin] 795—C
  hydrolysates and peptic ulcer, [Bockus] 299—ab
  hydrolysates, (Council report) 693
  hydrolysates treatment of peptic ulcer, [Boles] ★531
  in Blood: See Blood
  in *surgery*, 101—E
  in Urine: See Albuminuria
  metabolism, annual conference on, N. J., 194
  rate of liberation of different amino acids from a given protein, [Elvehjem] ★917
  resources, foods for emergencies, [Wilder & Keys] ★321
  Sensitivity: See Anaphylaxis and Allergy
PROTHROMBIN: See Blood prothrombin
PROTOLYSATE (powder), N.N.R., (Mead Johnson) 933
PRURITUS ani, [Bacon] 352—ab
PSITTACOSIS, diagnosis, serologic tests, [Smadel] ★1080
  exanthem in, [Averbach] 726—ab
PSYCHIATRIST, American, Dewey (Richard): his father was a blacksmith, 677—ab
  Association of, of Northwestern Germany, 709
  positions open for, USPHS, 179
PSYCHIATRY: See also Hospitals, psychiatric; Mental Disorders; Mental Hygiene; Neuropsychiatry; Psycho—
  child guidance clinic psychiatry, fellowship in, 788
  child, institute of, Conn., 785
  development, grants for, Ohio, 273
  industrial, fellowship, 703
  International Congress, Paris, 1950, 487
  training and research, grants for, 121
  training opportunity, N. Y., 181
PSYCHOLOGY: See also Psychosomatic Medicine
  clinical, new chief: Harold M. Hildreth, 192
  factors, pediatrician concerned with, 477—OS
  new Spanish Journal of General and Applied Psychology, 842
  training and research, grants for, 121
PSYCHONEUROSIS, dyspareunia, [Frank] ★361
  psychosomatic diagnosis, [Hart] ★147; 179—E
PSYCHOPATHIC *Hospital: See Hospitals, psychiatric*
PSYCHOSIS: See also Mental Disorders
  in trichinosis, [Campbell] 901—ab
  disease: *rheumatoid arthritis*, 1081—ab
  psychic disturbances and cardiovascular system, [Burch & Ray] ★1011
PSYCHOSOMATIC MEDICINE, "art of medicine" and, 179—OS
  aspects of gastrointestinal complaints, [Bockus] ★293
  diagnosis, [Hart] ★147; 179—E
  graduate institute in Kentucky, 121
  phenomena · cardiovascular system, [Burch & Ray] ★1011
PSYCHOSURGERY: See Brain surgery
PTOSIS: See Kidneys ptosis
PUBERTY, Age of: See Adolescence
PUBLIC Health: See Health, public
  Lecture: See Lectures
  relations in Finney County, Kans., 703
  relations of A. M. A., [Bortz] 182; 266
  relations program, La., 837
  Schools: See Schools
  wants a doctor when they want him, 695—E
PUERPERIUM, anticoagulation therapy in, [Greene] 797—ab
  complications: acute mastitis, [Jeffrey] 354—ab
  women who continue to bleed post partum, 290
PUERTO RICO, medical education in, 1101—E
  report of medical mission to, [Irons] ★979
  rural, nutritional status in, [Robinson] 846—ab
PUGH, LAMONT, personal, 410
PULMONARY: See Lungs
  Arteries: See Arteries, pulmonary
  Embolism: See Embolism
  Tuberculosis: See Tuberculosis of Lung
PUPILS, dilatation (voluntary) and voluntary acceleration of heart, 42—E
PUPILS (school): See Children, school
PURPURA, thrombopenic, cyclic, every 28 days for 6 years, [Reimann] ★241
  thrombopenic, thrombotic, [Singer] 499—ab
PURSHOTTAN, NATESAIER, in U. S., from India, 124
PUS: See Abscess; Pyuria
PYLORUS, obstruction complicating peptic ulcer, [Thompson] ★752
  stenosis, hypertrophic, [Schaefer] 902—ab
PYODERMA or jungle rot, 1010
PYREXIA: See Fever
PYRIBENZAMINE: See Tripelennamine
PYURIA, abacterial, and Reiter's syndrome, [Baines] 211—ab

Q

Q FEVER, diagnosis, serologic tests, [Smadel] ★1080
  outbreak, Calif., 194
QUINACRINE *(Atabrine) suppressive medication*, [Baker] 499—ab
  toxicity when employed jointly, [Chen] 208—ab
QUINIDINE, [Katz] ★1028
  idiosyncrasy to, [Barnes] 304—ab
QUININE, toxicity when employed jointly, [Chen] 208—ab
QUINN, DAVID E., personal, 784
QUINONE, ocular pigmentation in workers making, [Anderson] 1005—ab
QUIPENYL in malaria treatment, 345

R

RABBIT Fever: See Tularemia
RABIES, agent isolated from saliva, [Duffy] 501—ab
  diagnosed by inoculating saliva into animals, 253—E
  townships quarantined for, Ill., 634
RADAR, use by general practitioners, [Horvath] ★606
RADIATION: See Atomic Energy; Cyclotron; Infra-Red Rays; Radium; Roentgen Rays; Ultraviolet Rays
RADICULITIS: See Sciatica
RADIO: See also Television
  Frequency Energy Apparatus: See Diathermy
  "music with your meals," 180—E; 191—OS
  Program by A. M. A.: See American Medical Association
  Rocky Mountain radio service, 992
  transcriptions on physical medicine available, 882—OS
RADIOACTIVE Iodine: See Iodine
  Isotopes: See also Atomic Energy
  isotopes, 696—E
  isotopes, direct infiltration of [Hahn] 718—ab
  isotopes distribution, 336
  isotopes go to foreign countries, 939
  isotopes, medical aspects, 479; (message of Shields Warren to A. M. A.) [Bortz] 183
  isotopes treatment of leukemia and polycythemia, [Haden] ★309
  Phosphorus: See Phosphorus
  virus, topographic distribution after injection, 473—E
RADIOMANOMETRY, biliary, 945
RADIUM needles in bladder cancer, [Lenz] 206—ab
  treatment, intracavitary, of cancer of cervix, [Neary] 583—ab
  use in nasopharynx for deafness, [Jennings] 1068—ab
RAGWEED, none in British Isles, [Gottlieb] 490—C
RAINCOATS, Army, dermatitis patch testing, 850
RAPE, indication, for inducing abortion, 709
RASH: See Eruptions
RATS, control, seminar on, 701
  poliomyelitis virus in, [Francis & others] ★1088
  Test: See Pregnancy
  transmission of leptospiral infections, [Molner & others] ★814
  wood, plague infection in, Calif., 194
RAYS: See Radiation
READY, THOMAS J., personal, 784
REBATES and medical ethics, 176—E; 476
RECKLINGHAUSEN'S Disease: See Neurofibromatosis
RECORD Librarians: See Medical Record Librarians
RECREATION: See also Physicians, avocations
  A.M.A. 10-point national health program, 261
RECTAL SHELF, tumors, [McCrea] ★679
RECTOSIGMOID, cancer, surgical treatment, [Rankin & Johnston] ★371
RECTUM biopsy for Schistosomiasis *mansoni*, 894
  birth by, in abdominal pregnancy, [Brown] 502—ab
  cancer, [McCrea] ★679
  cancer, surgical treatment, [Rankin & Johnston] ★371
  conditions and occupational strain conditions, [Zager] 952—ab
  surgery, preparation and after-care, [Bacon & Rowe] ★975
  Varix: See Hemorrhoids
RECUMBENCY: See Convalescence
RED BLOOD CELLS: See Erythrocytes
RED CROSS, British, to establish hospitals in India, 417
  Danish, BCG vaccination in European countries by, 129
RED CROSS, AMERICAN, blood bank program, A.M.A. Committee to work with, 833—OS
  blood collecting center opened, Kansas, 412

RED CROSS, AMERICAN—Continued
blood program, A.M.A. resolutions on, 190; 269
blood program, serum globulin available for treatment of measles, 889
blood transfusion sets (43,000) bought by, 404—OS
drive in March, 787
president: Basil O'Connor, honored, 703
REDUCING Treatment: See Obesity
REFLEXES, innervation trapezii, 810
REFRIGERATION, preserve skin grafts by, 144
toxicity of refrigerant gases, 956
REGISTER; Registry; See American Medical Directory; Medical Register; Ophthalmology; Tumors
REGISTRATION of causes of death, 987—E
REHABILITATION clinic, Beth Israel hospital establishes, 49
clinic dedicated, Tex., 838
course in physical reconditioning, 783
institute a community project, Mo., 194
of physically impaired, 1110
vocational, Return to action (film review), 843
REITER'S SYNDROME and abacterial pyuria, [Baines] 211—ab
treatment, mapharsen, [Khoury] 135—ab
RELEASE of Medical Officers: See World War II, medical officers
RELIEF, foods for, [Wilder & Keys] ★325
RELIGION, A. M. A. centennial sermons, phonograph recording, 269
REMBER, LAWRENCE W., appointed A.M.A. executive assistant, 267; 475
REMUNERATION: See Fees
RENAL: See Kidneys
REPRODUCTION: See also Contraception; Families; Fertility; Pregnancy; Sterility
Committee on Human Reproduction of National Research Council, 889
RESEARCH: See also Science; under specific headings as Cancer
A.M.A. 10-point national health program, 264
center, committee approves funds for, 834—OS
criticism of Condon described as threat to, 936—OS
Fellowship: See Fellowships
Grants for: See also under Foundations
grants for, by A.M.A., 264
grants for, to U. of Illinois, 785
hospital in Bethesda to include beds for patients with cancer, 270—OS
Institute for Scientific Investigation, Buenos Aires, 794
life insurance medical research fund, 1058
National Research Council: See National Research Council
medical, naval, colloquium on, 700
Prizes for: See Prizes
projects by Veterans Administration, 784
volunteers to aid; ethics governing use of prisoners, Gov. Green's Committee report, ★457
volunteers to aid, transmission of epidemic gastroenteritis with oral fecal filtrates, 987—E
workers wanted by USPHS, 886
RESIDENTS AND RESIDENCIES: See also Fellowships; Interns and Internships
A.M.A. resolution on, 188; 189; 258
residencies available in neuropsychiatry, Veterans Administration, 886
residencies available, N. Y. C., 941; 1057
training program in neuropsychiatry, Yale, 480
RESINS, anion exchange, treatment of peptic ulcer, [Boles] ★531
dermatitis patch testing, 850
RESORTS: See Health resorts
RESPIRATION: See also Asphyxia; Inhalation; Snoring
erythrocyte, increased, [Pirwitz] 654—ab
hyperventilation, [Engel] 497—ab
noisy, 53
RESPIRATOR, Emerson Lung Immobilizing Chamber, 398
rubber seal applied to thorax instead of neck, [Hale & Gardner] ★984
treatment of poliomyelitis, [Gaustad] 355—ab; [Ingebrigtsen] 355—ab
RESPIRATORY METABOLISM: See Metabolism, basal
RESPIRATORY SYSTEM: See also Bronchus; Lungs; Pleura; Trachea
cancer of upper, treatment, [Rhoads] ★305
Disease: Set also Bronchiectasis; Lungs; Pneumonoconiosis
disease (acute) bacteriologic data, [Dingle] 952—ab
disease (acute), clinical patterns, [Dingle] 952—ab
disease, aerosol therapy, [Bryson] 581—ab
Infection: See also Colds; Influenza; Pneumonia; Tuberculosis of Lungs
infection epidemic in Los Angeles, 272
infections, common virus diagnosis; etiology, [Dingle] ★1084
REST, BED: See Convalescence
RESUSCITATION: See also Respirator
of asphyxiated newborn, [Atherton] 503—ab
reanimation by artificial circulation, [Schwiegk] 428—ab
RETINA angiospasm, papaverine in, [Russek & Zohman] ★932 (addendum)
hemorrhage and capillary fragility, [Shanno] 948—ab
RETIREMENT: See also Army, U. S.; Pensions
systems, medical chief comments on, 630—OS
REVISTA: See Journals
Rh FACTOR antigen, C^w and hemolytic disease of newborn, [Lawler] 138—ab
anti-Rh antigen-antibody reaction factor, [Bloxsom] 1113—ab
blood incompatibility, [Beca] 68—ab
congenital hemolytic disease extremely rare in first child, 71
in Jewish communities, 344
maternal Rh sensitization and normal child, [Carter] 494—ab
sensitization to Hr factor by transfusions, 180—E
transfusion and erythroblastosis, warning to physicians, [Hellman & Vosburgh] ★79
RHEUMATIC FEVER Cardiac Complications: See Heart disease (rheumatic); Heart insufficiency: Myocarditis
centers in Wayne County, Mich., 272
course, N. Y. C., 888
4 plus Wassermann in, what treatment suggested, 956
prevention, with penicillin? [Keefer] 321—ab
prevention, penicillin orally, [Milzer & others] ★536
recurrences, [Jackson] 501—ab
treatment, oral penicillin, [Mallner] 719—ab
treatment, salicylates cure? (discussion) 1026—ab
RHEUMATISM: See also Arthritis
Acute Articular: See Rheumatic Fever
campaign against, 1088—ab
Desert: See Coccidioidomycosis
International Conference on, 995
RHEUMATOID ARTHRITIS: See Arthritis, rheumatoid
RHINITIS, allergic, practical aspects, [Criep] ★601
dripping nose as early sign of hunger edema, [van der Hal] 429—ab
Vasomotor: See Hay Fever
RHINOPHARYNX: See Nasopharynx
RHODE ISLAND Medical Journal not member of Cooperative Medical Advertising Bureau, 399; 400—E
Society's voluntary prepayment plan, 46—OS
RHUS, treatment of ivy poisoning, 432
treatment of poison oak dermatitis with ascorbic acid, [Klasson] 716—ab
RIBOFLAVIN Deficiency: See Pellagra
in rice, [Maynard & Nelson] ★1045
N. N. R., (Walker) 829
RIBS: See also Sternum
cervical, symptoms, surgical treatment, [Adson] 650-ab
RICE diet treatment of hypertension, [Gay] 56-C
nutritive value, [Maynard & Nelson] ★1045
RICKETS, treatment, ultraviolet radiation, [Coblentz] ★1041
RICKETTSIA Disease: See also Q Fever; Rocky Mountain Spotted Fever; Tsutsugamushi Disease
disease, Colombian epidemic, 1009
disease, para-aminobenzoic acid in, [Rivers] 292-ab
disease, practitioner and virus diagnostic laboratory, [Smadel] ★1079
disease, recent advances in treatment, [Rivers] ★291
infections, symposium by New York Academy, 49
RISING, Early, After Operation, etc.: See Convalescence
ROBERTS, C. W., tribute to 267
ROCHESTER, University of: See University
ROCKEFELLER Foundation: See Foundations
ROCKY MOUNTAIN radio series, 992
ROCKY MOUNTAIN SPOTTED FEVER, diagnosis, serologic tests, [Smadel] ★1080
RODENT Ulcer: See Cancer, basal cell
RODENTS: See Rats
RODRIGO SABALETTE, P., tragic death, 129
ROENTGEN RAYS, fluoroscopy of infants, 1073
gas shadows in wounds examined with, [McDonald] 501-ab
Irradiation: See Roentgen Therapy
surveys at colleges and state institutions, Minn., 838
unit, bus type unit for state health department, Ariz., 702
unit, new mobile, Ill., 480
ROENTGEN THERAPY of herpes simplex, 908
ROUTLEY, T. C., address, at Cleveland Interim Session, 267
ROYAL Academy: See Seville
RUBBER, dermatitis patch testing, 850
RUBEOLA: See Measles
RUNYON Cancer Research Fund: See Foundations
RUPTURE: See Hernia; under name of organ
RURAL COMMUNITIES, accidents, [MacCornack] 284-ab
Puerto Rico and Virgin Islands, [Irons] ★981
health conference, Colorado, 565
health, National Conference on, (proceedings) 773-OS
health problems of rural child, [Hill] 773-OS
medical service, A.M.A Committee on, report, 186; 268; (Joint Committee report) 779-OS
medical student loan fund, Mich., 993
physicians, first under program enters practice, Miss., 272
physicians, joint fund to help train country doctors, Illinois, 48
Puerto Rico, nutritional status in, [Robinson] 846-ab
youth and World War II, [Freidman] 775-OS
RUSH (Benjamin) Prize: See Prizes
RUSKIN, S. L., theory and treatment of ruptured intervertebral disk, 1010
RUSSIA, new tuberculosis law, 201
RUTIN treatment of capillary abnormality in hypertension, [Griffith] 284-ab
treatment of hypertension, (discussion) 1032-ab
treatment, present status, [Haden] 310-ab
RYE, nutritive value, [Maynard & Nelson] ★1045

S

S-140: See Meperidine
S. 1606: See Wagner-Murray-Dingell Bill
SACCHARIN, oral, effect on blood sugar, [Kun 302-ab
SACRAL CANAL, Injection into: See Anesthesia, caudal
SAFETY: See also National Safety Council
home, National Committee on Home Safety, 475-OS
SAILORS: See also Navy
alcoholism an occupational disease of seamen 900-ab
SALICYLATES See also Acid, acetylsalicylic; Methyl Salicylates; Strontium
treatment cure rheumatic fever? (discussion) 1026-ab
treatment not used to prevent thrombosis, 592
SALIVA rabies agent isolated from, [Duffy] 501-ab
rabies diagnosed by inoculation of into animals, 253-E
SALIVARY GLANDS calculi, 794
calculi; diseases, tumors, [Furstenberg] ★1
SALPINGITIS: See Oviducts
SALT: See also Sodium chloride
diet (free) in hypertention, nobody known to have died from, [Allen] 202-C
diet (free) in hypertension, [Perera] 899-ab
diet (low) and dilute hydrochloric acid in hypertension, 809
poor human serum albumin in nephrosis, (Council report) 251
SALTS, inorganic, in brain, [Lewis] ★867
SALYRGAN: See Mersalyl
SAN FRANCISCO Municipal Employees Health Service System, [Diepenbrock] ★559
SAN JOAQUIN Valley Fever: See Coccidioidomycosis
SANATORIUM: See Tuberculosis sanatorium
SANBORN Metabulator 1947, 175
SANITATION: See also Health; Hygiene
regulation of coin-operated washing machines, N.Y.C., 412
SARCOID, Boeck's, pulmonary cavities in, [Appelman] 505-ab
review and appraisal, [Michelson] ★1034
treatment, calciferol and dihydrotachysterol in, [Curtis] 283—ab
SARCOMA: See also Lymphosarcoma; under organ or region affected
benzopyrene, blood changes in rats with, 55
cerebellar, [Naffziger & Boldrey] ★98
primary diffuse meningeal sarcomatosis [de Zarate] 904-ab
treatment, urethane, no clinical improvement, [Hirschboeck & others] ★93
types of, in bone, [Phemister] ★545
SAUER pertussis vaccine, correction, (reply) [Sauer] 956
SCALDS: See Burns
SCALENUS Anticus Syndrome: See Muscles
SCAPULA, "winged," Sprengel's deformity, [Spira] 653-ab
SCARLET FEVER, control, France, 945
convalescent serum for infectious mononucleosis, [Park] 902-ab
SCARS: See Cicatrix
SCHAUMANN-Besnier-Boeck Disease: See Sarcoid
SCHEELE, LEONARD A., succeeds as Surgeon General, 563; 630-OS; 1054
SCHERING Award See Prizes
SCHISTOSOMIASIS, Barlow (C. H.) infects himself with, to find cure, 1056
cerebral, [Hunt & others] ★686
cerebral granuloma due to, [Chang & others] ★230
diagnosis, severe back pain, 146
mansoni, rectal biopsy for, 894

SCHISTOSOMIASIS—Continued
  studies on, 632
  treatment, dosage of antimonium potassium tartrate, (correction) 636
SCHIZOPHRENIA: See Dementia Precox
SCHNEIDER, ELSA, personal, 783
SCHOLARSHIPS: See also Fellowships
  for training hard of hearing teacher, 113
  foreign, available soon, under Fulbright Act 836
  in sight conservation, N.Y., 786
  loan applications, Miss., 838
SCHOOLS: See also Education; Students: University
  Children in: See Children, school
  Congress on Hygiene of, Paris, 278
  health and transportation benefits, advocated, 988-OS
  of Nursing: See Nursing
  physicians and 403-OS
  typhoid carrier in high school cafeteria, Calif., 1055
SCHOOLS, MEDICAL: See also Education, Medical; Students, Medical: University: under names of specific schools
  Association of American Medical College, created 1890, [Friedenwald] 946-C
  Association of American Medical Colleges and A.M.A. survey 833-OS
  "Bringing Modern Medicine to the People" by Long Island College, 557-E
  international, propose establishment by A.M.A. and W.H.O., [Colvin] 573-C; [Smyth] 1000-C
  National School of Industrial Medicine, Spain, 489
  Polish physicians at U. of Edinburgh move institution to Puerto Rico? 1101-E
  School of Aviation Medicine, Randolph Field, Tex., 990; 1103
  School of Tropical Medicine, Puerto Rico, [Irons] *983
  Seville Faculty of Medicine, improvement, 129
  tuition, Harvard increases from $580 to $800, 1105
  veterans who desire to enter, 561
SCHUBERT *operation for* absence *of* vagina, [Bubis] *866
SCIATICA, vegetative sciatic neuralgia, [Pitha] 1115-ab
SCIENCE: See also Research
  Basic: See Basic Sciences
  in medicine, lecture on application of, 786
  Institute for Scientific Investigation, Buenos Aires, 791
  Medical: See Medicine
  National Science Foundation, 408-OS
  writing, George Westinghouse awards, 50
SCIENTIFIC TESTS: See Medicolegal Abstracts at end of letter M
SCILLAREN, status (Council discusses), 691
SCLERA, metastatic calcification, after vitamin D, [Frost] 1003-ab
SCLERODERMA and pregnancy, 433
  treatment, 511
SCLEROSIS: See also Arteriosclerosis; Liver cirrhosis
  multiple, A.M.A. resolution endorsing National Multiple Sclerosis Society 189; 258
  multiple, chemotherapy and use of antibiotics, 730
  multiple, clinics, Mass., 1056
  multiple, early manifestations, [Lichtenstein] 576-ab
  multiple, *electrostatic bulb luminescence* in patient, 591
  multiple, prognosis, [Thygesen] 429-ab
  Posterior Spinal: See Tabes Dorsalis
  therapeutic, of esophageal varices, [Patterson] 63-ab
SCREENING test (rapid) to determine lead in urine, [Cholak] 1069-ab
SCRUB Typhus: See Tsutsugamushi Disease
SCURVY and Ascorbic Acid (film review), 575
SEA: See Navy
  Water See Water
SEAMAN Fund: See Foundations
SEAMEN: See Sailors
SEASONS, *warm*, allergic *conjunctivitis*, 345
SEATWORMS: See Oxyuriasis
SECRETARIES: See Societies, Medical
SECRETINASE, hormone metabolism in target organs, [Luckhardt] (correction) 50
SECURITY: See Federal Security Agency; Social Security
  U. S. Dept. of: See Taft-Fulbright Bill
SEDATION, thermal, 772-E
SEDATIVES, place in cardiac therapy (discussion), 1032-ab
SEDIMENTATION Rate: See Blood
SEEGER, STANLEY J., emeritus chairman of A.M.A. Council on Industrial Health, 833-OS
SEELIG Lectureship: See Lectures
SEIBERT Award: See Prizes
SEIZURES: See Convulsions; Epilepsy
SELECTIVE SERVICE: See World War II
SELENIUM poisoning, [Rosenfeld] 648-ab
SELLING price of medical practice, [Dickinson] 333-OS
SELTZER soda water, composition, 512
SEMEN: See Spermatozoa
  Artificial Insemination: See Impregnation
SEMINAL VESICLES, cancer (primary); differentiation from extrarectal and rectal *carcinoma*, [*McCrea*] *679
SENILITY: See Old Age
SENSATION: See Paresthesia
SENSENICH, R. L., presentation of A.M.A. President-elect, 181
SENSES: See Hearing; Vision; etc
SENSITIVITY; Sensitization: See Anaphylaxis *and* Allergy
SEPTICEMIA: See Bacteremia
SERMONS, A. M. A. centennial, phonograph recordings, 269
SERODIAGNOSIS: See Influenza; Syphilis
SERUM: See also Vaccine
  Antireticular Cytotoxic (ACS): See *Bogomolets*
  Convalescent: See also Scarlet Fever
  convalescent, in therapy of viral diseases, [Rivers] 292-ab
  globulin available for treatment of measles, 889
  Human Serum Albumin: See Blood proteins
  plasma as food, [Wilder & Keys] *321
  plasma (pooled), National Research Council resolution on 705
  plasma (powdered) orally for gastrointestinal disorders, [Barondes] 61-ab
  plasma substitutes, need for; 557-E
  Plasma Transfusion: See Blood Transfusion
  plasma viscosity in rheumatic disease, [Cowan] 126-ab
  Reaction: See Anaphylaxis and Allergy
  therapy, autoserum therapy in herpes simplex, 908
  therapy (intrathecal) not required for influenzae meningitis, [Hoyne & Brown] *597
SERVICE, Physicians Separated from the Service: See World War II, medical officers
SERVICEMEN: See Veterans; World War II
  Readjustment Act: See G. I. Bill
SEVILLE *Faculty of Medicine, improvements,* 129
  Royal Academy of Medicine, 129
SEWAGE, poliomyelitis virus in, [Kling] 847-ab; [Francis & others] *1091
SEWALL, LEE G., personal, 939
SEX: See also Fertility; Reproduction; Sterility; Sterilization, Sexual
  Function, Decline of: See Menopause
  Function, Development of : See Adolescence
  Glands: See Gonads
  Hormones: See also Androgens; Estrogenic Substances; Gonadotropins
  hormones in allergic disorders, [Hartman] 422-ab
  hygiene, *Fort Knox experiment*, 1111
  Impotence: See Impotence
  Intercourse: See Coitus
  Offenses: See Rape
  Organs: See Genitals
  research, grants in aid for, 483
SEXUAL STERILIZATION: See STERILIZATION, SEXUAL
SHEA, THOMAS E., personal, 700
SHERRINGTON, Sir CHARLES, 90th birthday, 277
SHINGLES: See Herpes zoster
SHIPS: See Sailors; Navy
SHOCK: See also Anaphylaxis and Allergy; Electric shock
  electrolytes and water in, 832-E
  myocardium infarction followed by, (discussion) 1031-ab
  speed shock syndrome, fatal reactions after aminophylline, [Hyman] 895-C
  therapies, neurochemistry, [Lewis] *867
SHOES, *modification of Munson* last, 938
SHORT WAVES: See Diathermy
SHOULDER: See also Clavicle; Humerus; Scapula
  painful, in coronary disease, [Schott] 504—ab
SIALOLITHIASIS: See Salivary Glands, calculi
SICILIAN Tuberculosis Association meeting, 1110
SICK Headache: See Migraine
SICKLE CELLS: See Erythrocytes
SICKLEMIA: See Anemia, sickle cell
SICKNESS: See Disease; Health; Hospitals, Therapeutics
  Convalescence from: See Convalescence
  Insurance: See Insurance
  Rate of: See Vital Statistics
  Serum: See Anaphylaxis and Allergy
SIGHT: See Vision
SILICOSIS: See *Pneumonoconiosis*
SILLS, THEODORE R., and Co., public relations firm retained by A.M.A., 266; 267
SILVER nitrate, application to eye, 146
  nitrate vs. penicillin to prevent infant blindness, 1102-OS
  toxicity, use of BAL in argyria, 432
SIMOND, P. L., death at age of 89, 200
SIMULATION: See Malingering
SINGER, occipital headache in, 72
SINUSITIS, NASAL, changing concepts, [Putney] 352-ab
SKELETON: See Bones
SKIN: See also Dermatology; Tissues
  Burns See Burns
  Cancer: See also Epithelioma
SKIN—Continued
  cancer, [Michelson] *683
  cancer, production by ultraviolet radiation, [Coblentz] *1010
  Disease: See also Eczema; Dermatitis; Scleroderma.
  disease, chlorophyll for, [Langley] 65-ab
  disease, manifestations in psychiatric disorders, [Cornbleet & Brown] *152
  Disease (Industrial): See Industrial Dermatoses
  Eruptions: See Eruptions
  Fistula: See Fistula
  graft, Abdominal Tube Pedicle Graft to Lower Extremity via Wrist, (film review), 1111
  grafting, homologous, with identical twin as donor, [Converse] 136-ab
  grafts (McIndoe principle) for congenital absence of vagina, [Counseller] *861
  grafts, preservation by refrigeration, 144
  Hemorrhage: See Purpura
  Inflammation: See Dermatitis
  injury and epithelioma, 358
  irritation from ileostomy, 732
  Itching: See Eczema; Pruritus
  Keratosis: See Keratosis
  lesions in sarcoidosis, review and appraisal, [Michelson] *1034
  livedo racemosa or reticularis, 510
  of *face*, premature wrinkling, 216
  Rash: See Eruptions
  Reaction: See also Anaphylaxis and Allergy, sensitivity; Skin test; Tuberculin
  reaction to tetanus antitoxin, 1118
  Scleroderma: See Scleroderma
  stains, removal by washing with solution of potassium permanganate, rinsing with water, washing with a solution of sodium bisulfite, [Tuckerman] 643-C
  Test: See also Tuberculin
  Test: See also Skin reaction; Tuberculin
  test, dermatitis patch testing, 850
  test in pulmonary disease, [Groover] 498-ab
  Transplantation: See Skin grafting
  tuberculosis, rosacea-like tuberculid of Lewandowsky, streptomycin for 72
  tuberculosis, streptomycin for, [Waring] 314-ab
  Ulcers: See Decubitus; Ulcer
SKULL: See Cranium
SLEEP, Induced: See Anesthesia
  snoring, causes and treatment, 53
SLEEPING SICKNESS: See Trypanosomiasis
SLOAN-Kettering Institute for Cancer Research opened, 993
"SLUDGED" Blood: See Blood
SMALLPOX in Calcutta, 705
  in France under control, 945
  treatment, penicillin, 809
  vaccination and encephalitis, 84—ab
  vaccination during pregnancy, congenital malformations or miscarriage from? 1009
  vaccination guaranteed, Conn., 48
  vaccination, rashes after, 590
  vaccination record, 321—ab
  vaccinations for herpes simplex, 908
SMEARS: See Vagina
SMELL: See Odor
SMITH, JAY D., memorial library in honor of, 838
SMITH (Reginald Knight) Lecture: See Lectures
SMITH-CLARK Eye Clinic, La., 785
SNORING, causes; treatment, 53
SNYDER Award: See Prizes
SOCIAL agencies, urges revamping, as result of Kinsey report, 1102—OS
  Conditions: See House; Housing
  hygiene in Fort Knox experiment, 1111
  Insurance: See Insurance, sickness
  Medicine: See Socialized Medicine (cross reference)
  Security: See also Federal Security Agency; Insurance, sickness; Medical Service Plans
  security, federal and state financing, 114—OS
  Security, Wagner-Murray-Dingell Bill: See Wagner
  welfare, expenditures, President's budget message suggests, 403—OS
  workers, shortage in U. S. Army, 47
SOCIALIZED Medicine: See Hospitals, expense sickness; Insurance, sickness; Medicine, socialized; Medicine, state
SOCIETIES, MEDICAL: See also American Medical Association; under names of specific societies; list of Societies at end of letter S
  county, activities, study by A.M.A. Council, 187
  county, Dr. S. Elizabeth McFetridge first *woman to head W. Va., 339*
  German, in Soviet Zone, 1110
  physicians service bureaus, 695—E
  Plans for Medical Service: See Medical Service *Plans*
  state, annual conference of secretaries and editors, Pa., 635
  state, Pennsylvania to publish history, 838
  state, South Carolina News Letter, 704

SOCIETIES, MEDICAL—Continued
  state, student members, Conn., 480
  Woman's Auxiliary: See Woman's Auxiliary
SODA water, composition, 512
SODIUM antimonyl tartrate treatment of Kala-azar, [Adams] 285—ab
  bisulfite solution, $Na_2S_2O_5$, to remove skin stains, [Tuckerman] 643—C
  Chloride: See also Salt
  chloride, hypertonic infusions in diabetes *insipidus*, [Carter] 717—ab
  chloride solution, intravenous use, 215
  Dehydrocholate: See Decholin-Sodium
  p,p'-Diaminodiphenyl-N,N'-didextrose Sulfonate: See Promin
  diet (low) in compensated valvular disease, [Barnes] 303—ab
  Disodium *formaldehyde sulfoxylate*, 4,4'-diaminodiphenyl sulfone: See Diasone
  electrolytes and water in shock, 832—E
  Penicillin: See Penicillin
  restriction in hypertension, [Perera] 899—ab
  Sulfadiazine: See Sulfadiazine
SOFT Drinks: See Beverages, carbonated
SOFTENERS, water home, 144
SOIL Bacteria, Preparation from: See Tyrothricin
SOLDIERS: See also Army; Veterans; World War II
  Heart: See Asthenia, neurocirculatory
  test reactions to heat and cold, 631
SOLO-PAK Hearing Aids, 768
SOLUTION: See under names of specific substances as Potassium permanganate; Sodium chloride; Streptomycin; Sugar
SOLVENTS, volatile, poisoning, [Clinton] 1070—ab
SOMATIC Complaints: See Psychosomatic Medicine
SOUND, musicogenic epilepsy, [Shaw] 583—ab
  supersonic reproduction on gramophone records, 199
SOUTH AMERICA: See also Inter-American; Latin American; Pan American; under names of specific countries as Argentine; Brazilian
SOUTHERN Surgical Association resolution on nurse anesthetist, [Blalock] 279—C
SOY BEANS, foods for emergencies, [Wilder & Keys] ★324
SPANISH Congress of Digestive Pathology and Nutrition, Oct. 26-30, 128
  Speaking Association of Physicians, international, meeting, 888
SPAS: See Health resorts
SPASM: See also Tetany
  of muscles of occipital and posterior cervical area, 72
SPASMOPHILIA: See Tetany
SPEAKING: See Voice
SPECIALISTS: See under types of specialists as Pathologists; Pediatricians
  Certification: See American Board of
SPECIALTIES: See also under types of specialties as Gynecology; Neurology; Ophthalmology
  Board for General Practitioners, [Joint Committee report], 778—OS
  Examining Board: See American Board of
  practice, question of sale or purchase, [Dickinson] 334—OS
  specialization by Danish physicians, 893
SPECTACLES: See Glasses
SPEECH: See also Voice
  disorders, "If Your Child Stutters", leaflet for parents, 413
SPEED shock, syndrome, fatal reactions after aminophylline, [Hyman] 895—C
SPERMATOZOA counts and sterility, [Movitt] 56—C; [Rubin] 490—C
SPHINCTER MUSCLES, damage, urine incontinence, 1118
SPILSBURY, Sir BERNARD, death, 344
SPINAL ANESTHESIA: See Anesthesia
SPINAL CORD: See also Encephalomyelitis; Meningoencephalitis; Poliomyelitis
  cancer, [Naffziger & Boldrey] ★96
  injuries, automatic micturition, [Martin] 132—ab
  symptoms and pernicious anemia, treatment, [Haden] 309—ab
  tumors in children, [Dargeon] ★467
SPINAL FLUID: See Cerebrospinal Fluid
SPINAL MENINGITIS: See Meningitis, cerebrospinal epidemic
SPINAL PUNCTURE, meningitis after, preventing, 344
  treatment of chronic alcoholism by, 70
SPINE: See also Ribs
  injury, bladder management after, [Veseen] 651—ab
  intervertebral disk, Dr. S. L. Ruskin's theory and treatment, 1010
  intervertebral disk, failure after disk operation, [Campbell] 800—ab
  intervertebral disk, herniated, [Peyton] 62—ab
  lesions of vertebral bodies, aspiration biopsy in, [Valls & others] ★376
SPINE—Continued
  manipulation to relieve pain after testis injury, 592
  tuberculous spondylitis, early signs, [Hagelstam] 653—ab
  tuberculosis, tomography in, [Wood] 137—ab
SPLANCHNICECTOMY: See Nerves
SPLEEN, Excision: See Splenectomy
  Spleen Enlarged: See Splenomegaly
  radioactive tobacco virus percentage in, after injection, 473—E
SPLENECTOMY, effect on blood, 144
SPLENOMEGALY, congestive (*Banti's disease*), hemorrhagic tendency, [Tocantins] ★616
SPONDYLITIS: See Spine
SPONGE, gelatin, cuff to control hemorrhage, [Jenkins] 798—ab
  gelatin, to control hemorrhage from heart by, [Jenkins] 898—ab
SPONGIOBLASTOMA polare, [Naffziger & Boldrey] ★99
SPOON nails, 433
SPORTS: See Athletics; Golf
SPOTTED Fever: See Rocky Mountain Spotted Fever
SPRAY: See Penicillin treatment
  Nasal: See Nose
SPRENGEL'S Deformity: See Scapula
SPRUE, tropical, [Black] 354—ab
SPUTUM examination in diagnosis of tuberculosis, [Kirschner] 504—ab
  positive, in what percentage of patients with minimal tuberculosis? 70
STAINS, cutaneous, wash with potassium permanganate, water, then sodium bisulfite, [Tuckerman] 643—C
STANFORD University, (popular medical lectures) 940; (Eye Bank report) 1055
STAPHYLOCOCCUS, antagonistic effect on *Loeffler's bacillus*, [Lesbre] 355—ab
  food poisoning and cooking procedures, [Hussemann] 495—ab
  pneumonia in childhood, [Guthrie] 584—ab
  poisoning, fatal in infant in maternal mastitis, [Selberg] 67—ab
  resistant to penicillin, [Barber] 652—ab
STARIN Lecture: See Lectures
STARVATION: See also Hunger; Nutrition deficiency
  Edema due to: See Edema, nutritional
  foods for emergencies, [Wilder & Keys] ★322; 330—E
STATE Health Department: See Health
  Legislation: See Laws and Legislation
  Medicine: See Medicine, state
  Society: See Societies, Medical
STATE BOARD: See Licensure
STATICIN, (Council report) 251
STATISTICS: See Vital Statistics
STEATORRHEA: See Feces, fat in
STERILITY: See also Eunuchoidism; Fertility; Impotence; Reproduction; Spermatozoa
  American Society for study of, conference, 705
  contraception masking, [Rubin] 490—C
  how soon does absolute sterility appear after vasectomy, 1010
  Inducing: See Sterilization, Sexual
  spermatozoa counts and, [Movitt] 56—C; [Rubin] 490—C
  Treatment: See also Impregnation, artificial
  treatment in man of 40, 956
STERILIZATION, BACTERIAL: See Bactericides
STERILIZATION, SEXUAL: See also Castration; eunuchoidism; Ovary excision; Testis excision
  anastomosis of vas deferens after, [O'Conor] ★162
  when indicated in cesarean section? 955
STERN, FRANCES, *death of pioneer nutritionist*, 272
STERNUM, puncture for bone marrow in diagnosis of typhoid in children, [Rogge] 427—ab
STEROIDS: See under names of specific steroids as Ketosteroids
STETHOSCOPE auscultation of abdomen to locate tip of Miller-Abbott tube, [McLanahan] ★35
STEWART Memorial Lecture: See Lectures
STILBESTROL: See Diethylstilbestrol; Estrogenic Substances; Medicolegal Abstracts at end of letter M
STILLBIRTHS, role of continuous caudal analgesia, [Hingson & others] ★221
  role of maternal age, 558—E
STOMACH: See also Digestive System; Gastroacidity, effect of mucin antacid mixture, [Kammerling] 1003—ab
  biopsy of gastric mucosa under gastroscopic control, 842
  cancer, estrogens affect? [Rhoads] 307—ab
  cancer of cardiac end, [Bockus] ★293
  cancer, results of surgical treatment for ulcer, [Marshall & Welch] ★748
  contents, Papanicolaou stains for, [Campbell] 1114—ab
  emptying at high altitudes, [Mineh] 582—ab
  emptying (rapid) [Bockus] 298—ab
STOMACH—Continued
  Excision: See Stomach surgery
  extract (hog) in ulcerative colitis, [Ehrlich] 60—ab
  Mucin: See Mucin
  mucosa, prolapse of, etiology, [Bralow] 421—ab
  secretion, alterations in tuberculosis, [Capo Porcel] 506—ab
  Surgery: See also Peptic Ulcer, surgical treatment
  surgery, alimentary hypoglycemia after, [Gerrits] 505—ab
  surgery, total gastrectomy, [Pack] 207—ab; (late effects) [MacDonald] 720—ab
  Ulcer: See Peptic Ulcer
STOMATITIS, acute, diagnostic problem, 434
STONEBURNER Lecture: See Lectures
STONES: See Calculi (cross reference)
STOOL, hydraulic lift for patients with partial leg paralysis, [Wesselhoeft] 56—C
STOOLS: See Feces
STORAGE Batteries: See Batteries
  of Blood: See Blood Transfusion, blood bank
STRAIN, occupational, and rectal conditions,

See Lectures
e also Enterococcus
  carriers, 591
  carriers, penicillin for, [Goerner] 209—ab
  hemolytic, action of mercurials on, (Council report) [Morton & others] ★37
  hemolytic, resistant, to penicillin, [Milzer & others] ★536
  Infections: See Endocarditis; Rheumatic Fever
STREPTOMYCES griseus not responsible for infection in man, [Keefer] 320—ab
STREPTOMYCIN, dosage in tuberculosis, experimental study, 112—E
  dosage, time-dose relationship, [Keefer] 321—ab
  excretion into tuberculous cavities, [Steenken] 715—ab
  hydrochloride, N.N.R., (Squibb) 933
  not infectious, [Keefer] 320—ab
  solutions, preservation, [Ramon] 141—ab
  sulfate and calcium penicillin mixture with consequent formation of calcium sulfate (replies) [Coghill; Rieveschl] 956
  toxicity, aplastic anemia, [Deyke & Wallace] ★1098
  toxicity, sensitization in nurses from contact, [Strauss] 64—ab; [Rauchwerger & others] ★614
  Treatment: See also Empyema; Fistula; Endocarditis; Gastrointestinal Tract disorders; Granuloma inguinale; Infection; Kidneys tuberculosis; Larynx tuberculosis; Leprosy; Meningitis; Peritonitis; Skin tuberculosis; Tongue, tubeculous ulcer; Tracheobronchitis; Tuberculosis; Tuberculosis of Lung; Tularemia; Undulant Fever; Whooping Cough
  treatment, administer in distilled water rather than in saline solution, [Keefer] 321—ab
  treatment compared with polymyxin, [Schoenbach & others] ★1096
  treatment, failure in empyema, [Waring] 314—ab
  treatment, hazard to public health in patients with resistant type of tubercle bacillus, [Oatway] 490—C
  treatment, how to avoid bad effects, [Waring] 314—ab
  treatment, intraperitoneal, 1074
  treatment plus oil of chaulmoogra of urinary tuberculosis, [Slotkin] 846—ab
  treatment plus penicillin mixed in same syringe? [Keefer] 320—ab
  treatment plus penicillin, possible incompatibility, (replies) [Coghill; Rieveschl] 956
  treatment plus sulfadiazine in brucellosis, [Spink & others] ★382
  treatment plus sulphetrone in tuberculosis, [Madigan] 903—ab
  treatment resistance of tubercle bacilli, 360
  treatment, sensitivity of leptospirae to, [Wylie] 138—ab
  treatment, what dilutions should be used in intraspinal injections? [Keefer] 321—ab
STROKES, little, 590
STRONG Medal: See Prizes
STRONTIUM salicylate, allergic reactions to, 592
STROPHANTHIN, action, mechanism of, [Danielopolu] 428—ab
STRYCHNINE-cacodylate preparation in chronic brucellosis, [Griggs] ★911
STRUMA: See Goiter
STUDENTS: See also Children, school; Education; Schools; Students, Medical; University
  college, needy, federal aid urged by presidential commission, 119—OS
  health center opened, U. Nebr., 703
  International Clinical Congress, 942
  Nurses: See Nurses

STUDENTS, MEDICAL: See also Education, Medical; Interns and Internships; Schools Medical
  awe-inspiring examiners and panicky examinees, 894
  BCG vaccination, University of Illinois, [Rosenthal & others] *74
  Fellowships: See Fellowships
  loan fund (rural) for, Mich., 993
  loans to veterans, 564
  members of state society, Conn., 480
  Prizes for: See Prizes
  Scholarships: See Scholarships
  Teaching: See Education, Medical
STURGE-Weber-Dimitri's disease, [Lichtenstein] 134—ab
STUTTERING: See Speech disorders
SUBARACHNOID Hemorrhage: See Meninges
SUBJECT HEADINGS, medical, symposium at Army Medical Library, 204
SUBMERSION, Death Due to: See Drowning
SUDAN, ARCHER CHESTER, A. M. A. General Practitioner Award to; 178—E; 181—OS; 184—OS; (tribute to) 190; 191; 269
SUFFOCATION of infants by milk feeds or vomitus, 1061
SUGAR: See also Carbohydrates; Molasses
  Cane: See Bagasse
  In Blood: See Blood sugar
  nutritive value, [Maynard & Nelson] *1018
  solution (hypertonic) use in hypertensive encephalopathy, [Barnes] 304—ab
SUICIDES, deaths of physicians in 1947, 252—E
SULFADIAZINE blood levels of sulfadiazine and sulfamerazine not strictly comparable, 1009
  Sodium (Sterile Powder), N.N.R., (Abbott) 329
  sodium, subcutaneous administration, [Forbes] 501—ab
  toxicity, [Friedman] 1005—ab
  treatment of cerebrospinal epidemic meningitis, [Zeller & others] *8
  treatment plus streptomycin for brucellosis, [Spink & others] *382
SULFAMERAZINE and sulfadiazine whole blood levels not strictly comparable, 1009
  cerebrospinal fluid concentration, 1009
  N.N.R., (Abbott) 829
  treatment of cerebrospinal epidemic meningitis, [Zeller & others] *8
  treatment of pneumonia in adults, [Joules] 802—ab
SULFANILAMIDE, toxicity, thymol turbidity test in, 1061
SULFAPYRIDINE treatment of dermatitis herpetiformis, [Costello] 616—ab
SULFATE, inorganic, tubular reabsorption, 1101—E
SULFATHIAZOLE, N.N.R. omit from 1949 edition, (Council discusses), 691
SULFONAMIDE COMPOUNDS, anti-sulfonamide activity of para-aminobenzoic acid, [Elvehjem] *918
  child asphyxiated by sulfonamide tablet, [Heald] 318—C
  ointment, use for prophylactic (venereal) (Council discusses), 691
  ointments, sensitivity to, [Gottschalk] 716—ab
  Sulfadiazine: See Sulfadiazine
  Sulfamerazine: See Sulfamerazine
  Sulfanilamide: See Sulfanilamide
  Sulfapyridine: See Sulfapyridine
  Sulfathiazole: See Sulfathiazole
  toxicity, folic acid to combat, [Elvehjem] *916
  toxicity, necrotic arteritis, [Van Rijssel] 141—ab
  toxicity, photosensitivity; relation to vaccination reaction, [Watkinson] 211—ab
  toxicity, role of liver in renal complications, [Kuzma] 1003—ab
  treatment, intrathecal not required for influenzal meningitis, [Hoyne & Brown] *597
  treatment, niacin amide to prevent anorexia after, [Goldstein] 950—ab
  treatment of anemia, [Elvehjem] *916
  treatment, penicillin synergy, [Stewart] 426—ab
  treatment plus penicillin, in empyema and lung abscess, 127
  treatment plus penicillin for sore throat, [Keefer] 320—ab
  treatment, prophylactic, in prolonged labor, 145
  treatment, use of mixtures, (Council discusses), 691
SULFONES: See also Diasone; Promin
  treatment of leprosy, [Faget & Erickson] *451; 830—E
  treatment plus streptomycin of tuberculous meningitis, [Lincoln & others] *593
SULFUR dioxide, ocular injuries from, [Grant] 1005—ab
SULPHETRONE and streptomycin in tuberculosis, [Madigan] 903—ab
SUNBURN, edema after, 288
SUNLAMPS:. See also Ultraviolet Rays
  Artron, Type A, 690
  Dream, 625
  skin cancer from using, [Coblentz] *1040
SUNLIGHT, Toxicity to: See Light toxicity; Sunburn
SUPPLIES: See Medical Supplies
SUPPURATION: See Bronchus; Lungs; Ulcers
SUPRARENALS: See Adrenals
SUPREME COURT, U. S.: See Medical Jurisprudence
SURGEONS: See also Medicine; Physicians; Surgery
  American College of, (resolution approves nurse anesthetists) 839; (tumor registries) 1063
  Heroic Action of: See World War II, Heroes
  International College of, 1106
  Neurosurgeons: See Neurosurgeons
  Surgeon General: See Army, U. S.; Health, U. S. P. H. S.; Navy, U. S.
SURGERY: See also under names of specific diseases, organs and operations as Cesarean Section; Peptic Ulcer, surgical treatment; Splenectomy; Sympathectomy; Thyroidectomy; Tonsillectomy; etc.
  Amputation: See Amputation
  Anesthesia: See Anesthesia
  Congress of French Surgery Association (50th), 200
  Early Rising after Operation: See Convalescence
  in Chest Diseases (film review), 947
  International Congress on Surgical Films (1st), Paris, 915
  Judd (E. Starr) lecture in, 838
  Neurosurgery: See Neurosurgery
  Postoperative Care: See also Convalescence
  postoperative care in bowel surgery, [Bacon & Rowe] *975
  postoperative dicumarol prophylaxis, [Borgström] 139—ab
  postoperative thrombosis in gynecologic patients, [Weltman] 67—ab
  postoperative wound disruption, [Truman] 577—ab
  preoperative care in bowel surgery, [Bacon & Rowe] *975
  protein deficiency in surgical patients, [Stewart & others] *1017
  proteins and amino acids in, 401-E
  Southern Surgical Association resolution on nurse anesthetist, [Blalock] 279-C
  television in operations, [Trimble] 62-ab
  traveling professor: Sir Hugh Cairns, 571
SURGICAL Dressings: See Dressings
SURPLUS PRODUCTS, sale of 191-OS; 336
SUTURES, Cranial: See Fontanel
SWANSON, C. A., (personal) 410; 563 (comments on armed forces retirement pension systems), 630-OS
SWEAT GLANDS, inflammation, 216
SWIMMING: See Drowning
SWINE: See Hogs
SWINE ERYSIPELAS: See Erysipeloid
SYMPATHECTOMY for obliterative arterial disease, [Freeman] 898-ab
  thoracolumbar, in hypertension, [Lord] 720-ab
SYMPATHETIC Nervous System: See Nervous System, Sympathetic
SYNCOPE, fainting and flying, 830-E
SYPHILIS: See also Venereal Disease; and under specific organ or disease affected
  Brayton Foundation for advancement of knowledge, Ind., 481
  Cardiovascular: See Cardiovascular Disease, syphilis
  Cerebrospinal: See Neurosyphilis
  congenital, latent, treatment, 215
  congenital, serologic tests, 215
  control, state program, Ill., 194
  hereditary, treatment of interstitial keratitis, 215
  in Pregnancy: See Pregnancy complications
  latent, penicillin for, *876
  Neurosyphilis: See Neurosyphilis
  serodiagnosis, laboratories approved for, Colo., 1105
  serodiagnosis, tests in congenital syphilis, 215
  serodiagnosis, tests in malaria, [Nelson] 354-ab
  serodiagnosis, tests in patients treated with penicillin, [Rein] 649-ab
  Study Section of National Institute of Health symposium, 271; *873
  treatment, arsenic and BAL, [De Orco] 647-ab
  treatment, calcium penicillin, [Koch] 136-ab
  treatment, 4 plus Wassermann in rheumatic fever, 956
  treatment in France, 277
  treatment, mapharside plus penicillin, [Willcox] 212-ab
  treatment, penicillin, [Joseph] 845-ab; *873
  treatment, penicillin, serologic tests in, [Rein] 649-ab
  treatment, penicillin, status; Syphilis Study Section, National Institute of Health, *873
  treatment, penicillin used against other diseases effect on, *874
  treatment, retreatment during pregnancy, 146
  treatment, unabsorbed bismuth salts, 290
SYRIA, group to study cholera epidemic in, 121
SYRINGE,. hypodermic, transmitted epidemic of infectious hepatitis, [Capps & others] *819
SYRUPS, nutritive value, [Maynard & Nelson] *1048

SOCIETIES AND OTHER ORGANIZATIONS

Acad.—Academy
Am.—American
A.—Association
Coll.—College
Commn.—Commission
Comm.—Committee
Conf.—Conference
Cong.—Congress
Dist.—District
Div.—Division
Found.—Foundation
Hosp.—Hospital
Indust.—Industrial
Inst.—Institute
Internat.—International
M.—Medical
Med.—Medicine
Nat.—National
Pharm.—Pharmaceutical
Phys.—Physicians
Soc.—Society
Surg.—Surgery
Surgs.—Surgeons
S.—Surgical

Acad. of Med. of Brooklyn, 49, 195
  of Neurological Surg., 787
Advisory Comm. on Geriatrics, 195
Alabama, M. A. of the State of, 887
Alameda County (Calif.) M. A., 122
Alcoholics Anonymous, 565
Allied Control Council, 839
Alpha Epsilon Delta, 635
  Kappa Kappa M. Fraternity, 567, 1055
  Omega Alpha, 566
Alumni A. of Jefferson M. Coll. of Philadelphia, 566
Alumni-Faculty Found. (Baylor), 123
Am. Acad. of Dermatology and Syphilology, 196
  Acad. of Ophthalmology and Otolaryngology, 787
  Acad. of Orthopaedic Surgs., 124
  Acad. of Pediatrics, 483, 786, 1058
  Allergy Found., 483
  A. for the Advancement of Science, 50, 196
  A. for the Study of Goiter, 1106
  A. of Blood Banks, 567
  A. of Immunologists, 705
  A. of Indust. Phys. and Surgs., 636
  A. of M. Record Librarians, 636, 1058
  A. of Oral Pathology, 50
  A. *of Psychiatric Clinics*, 788
  A. of School Administrators, 340
  A. *of the History of Med.* 995
  Board of Neurology and Psychiatry, 480
  Board of Obstetrics and Gynecology, 340
  Board of Ophthalmology, 634
  Board of Orthopaedic Surg., 787
  Broncho-Esophagological A., 788
  Cancer Soc., Inc., 122, 273, 482, 567, 785, 940, 993
  Cancer Soc. Divs.: Illinois, 480; Kansas, 703; Massachusetts, 941; Milwaukee (Wis.), 942; Minnesota, 838; N. Y. State, 566
  Chemical Soc., 274, 788, 994
  Coll. of Allergists, 705
  Coll. of Chest Phys., 635, 704, 940, 995
  Coll. of Phys., 124, 889
  Coll. of Surgs., 50, 703, 839
  Comm. of Maternal Welfare, 1058
  Cong. of Physical Med., 274, 787
  Dermatological A., Inc.. 995
  Diabetes A., 274, 567
  Found. for Tropical Medicine, 196
  Gastroscopic Soc., 995
  Hearing Soc., 413, 1058
  Inst. of Biological Sciences, 788
  Inst. of Nutrition, 705
  Laryngological A , 942
  Laryngological, Rhinological and Otological Soc., Inc., 942
  Library A. Comm. on Awards, 1107
  M. A., 413, 481, 483, 567, 635, 703, 787, 888, 1058, 1106
  M. Golfing A., 483
  Orthoptic Council, 787
  Otorhinologic Soc. for the Advancement of Plastic and Reconstructive Surg., 274
  Overseas Aid—United Nations Appeal for Children, 274
  Pharm. Manufacturer's A., 1058
  Physical Therapy A., Illinois Chapter, 634
  Phys. Art A., 339
  Phys. Literary Guild, 338
  Physiological Soc., 705
  Psychiatric A., 1107
  Red Cross, 122, 412, 566, 635, 636, 703, 787, 889
  Soc. for Experimental Pathology, 705
  Soc. for Pharmacology and Experimental Therapeutics, 705
  Soc. for Surg. of the Hand, 196
  Soc. for the Study of Sterility, 705
  Soc. for X-ray and Electron Diffraction, 787
  Soc. of Anesthesiologists, Inc., 634, 838
  Soc. of Biological Chemists, 705
  Soc. of Research in Psychosomatic Problems, 995
  Student Health A., 1058
Arizona Soc. of Psychiatry and Neurology, 940
  State Department of Public Health, 702
  State M. A., 1055
Arkansas M. Soc., 837
Armour and Company, 480
A. for the Study of Internal Secretions, 196
  of State and Territorial Health Officers, 196
Atomic Energy M. Steering Comm., 635

THROMBOSIS—Continued
  venous, and septic sore throat, [Reye] 584-ab
  venous, anticoagulants in, [Evans] 1070-ab
  venous, heparin in, [Loewe] 503-ab
  venous, of hepatic veins, [Thompson] 576-ab
THYMOL, treatment of actinomycosis (reply) [Etter] 1010
  turbidity test in experimental poisoning, 1061
  turbidity test in liver disease, [Kunkel] 579-ab
THYROID: See also Goiter, Toxic; Parathyroid
  antithyroid action of estrone, [Lederer] 140-ab
  cancer, advances in treatment, [Rhoads] ★306
  cancer (papillary), [Crile] 651-ab
  Excision: See Thyroidectomy
  Extract: See Thyroxin
  Hyperthyroidism: See Hyperthyroidism
  Hypothyroidism: See Hypothyroidism
  Surgery: See Thyroidectomy
  symptoms in diabetes mellitus, [Schulze] 725-ab
  tuberculosis, [Goggi] 140-ab
  tumors, malignant neoplasma, [Rogers] 209-ab
THYROIDECTOMY for hyperthyroidism, indications, [Crile] 353-ab
  subtotal, symptoms after, 71
THYROTOXICOSIS: See Goiter, Toxic
THYROXIN, omit from next edition (1949) of N.N.R., (Council discusses), 691
  treatment of cataract, 956
TIBIA, periosteum to repair defects in paratibial region, [Giannestras] 496-ab
TIC: See Spasm
  Douloureux: See Neuralgia, trigeminal
TICK Fever: See Rocky Mountain Spotted Fever
TINEA Versicolor: See Pityriasis
TINNITUS, 810
TINTED Lenses: See Glasses
TIREDNESS: See Asthenia; Fatigue
TISSUES See also Cells; Epithelium; Mucous Membrane (cross reference); Skin
  diagnosis, correlation with vaginal smears, [Isbell] 282-ab
  epithelial metaplasia of urinary tract, [Patch] ★824
  levels, relation to blood levels, in use of penicillin, [Keefer] 320-ab
TOAD TEST: See Pregnancy diagnosis
TOBACCO, amblyopias due to, 842
  mosiac virus, radioactive, 473-E
TOES Abnormalities: See Arachnodactyly
TOMATOES, nutritive value, [Maynard & Nelson] ★1046
TOMOGRAPHY in spine tuberculosis, [Wood] 137-ab
MPKINS, HARVEY J., *new chief of neuropsychiatric service, 939*
NGUE, black tongue, 908
  black tongue, 3-acetylpyridine aggravates, [Elvehjem] ★918
  furrowed, Melkersson's syndrome, [Kettel] 133-ab
  lesions and niacin deficiency, [Bakwin] 1112-ab
  tuberculous ulcer, streptomycin for, [Wolfer
on left side, 288
oliomyelitis, [Cunning] 647-ab
  in mongoloid children, 216
  in pregnancy, 732
  perform at same time as adenoidectomy? 808
TONSILLITIS: See Tonsils, infected
TONSILS, improve as result of adenoidectomy? 808
  Infected: See also Throat, sore
  infected, myocarditis with, [Gore] 714—ab
  infected with virus, [Dingle] ★1085
TOOTH: See Teeth
TOXIC GOITER: See Goiter, Toxic
TOXICOLOGY: See Poisoning
TOXOID: See Tetanus
TOXOPLASMOSIS, congenital, [Kean & Grocott] ★101
aryngotracheobronchitis;
, tuberculous, [Judd] 135—ab; [Clerf] ★735
  tuberculous, streptomycin in, [Brewer] 715—ab
TRADE Hazard, Poisoning: See Industrial Diseases; Industrial Health; etc.
TRAINING: See Education, Medical; Nurses, students; Nursing, school of
TRAIT cells, use for blood transfusion in sickle cell anemia (addendum) [Singer & Robin] ★1025
TRANSFUSION: See Blood Transfusion
TRANSPLANTATION: See Skin grafting
TRANSPORTATION: See Automobiles; Aviation
TRAUMA: See also Accidents; Automobiles; Burns; Fractures; Medicolegal Abstracts at end of letter M
  epilepsy after, 809
  Industrial: See Industrial Accidents
  diabetes mellitus after, [Louyot] 68—ab
  metabolic disturbances after injury, [Beattie] 583—ab
  poliomyelitis after injury, [Verjaal] 585—ab
TRAVEL: See also Automobiles; Aviation
  immunization for tropics, 657
  precautions before going to Africa, 511
  precautions before going to Latin America, 592
TREATMENT: See Therapeutics
TREPONEMA Pallidum Infection: See Syphilis
  pallidum, viability, [Lumsden] 724—ab
  Pertenue Infection: See Frambesia
TRIALS: See Medical Jurisprudence
TRICHINOSIS, psychoses with, [Campbell] 901—ab
  research, Colorado, 194
TRIPELENNAMINE (pyribenzamine), treatment of hay fever, [Fuchs] 578—ab
  treatment of reactions to penicillin, [Freisbach] 479—ab
  treatment of trigeminal neuralgia, [Horton & Brennan] ★870
  use of, 592
TROPICAL DISEASE: See also Tropical Medicine; and under names of specific diseases as Filariasis; Kala-azar; Malaria; Schistosomiasis
  exotic diseases, 111—E; (correction) 483
  pyoderma or jungle rot, 1010
  sprue, [Black] 354—ab
TROPICAL MEDICINE, American Foundation for Tropical Medicine award of Strong medal, 196
  International Congresses on, (4th) 833—OS; 1107
  School of, in Puerto Rico, [Irons] ★983
TROPICS, immunization for, 657
  typhoid in troops after arrival in, [Wielenga] 804—ab
TRUMAN, HARRY S., (message to Congress) 177—E; (budget message suggests expenditures for social welfare) 403—OS; *(urges public support in combating heart disease)* 561—OS; (National Health Assembly, May 1-4) 694—E
TRYPANOSOME vaccine in cancer treatment, 591
TRYPANOSOMIASIS, American, diagnosis, precipitin reaction, 572
TRYPTOPHAN-deficient diets, ocular lesions in rats on, [Ferraro] 133—ab
TSUTSUGAMUSHI DISEASE, U. S. Army to test chloromycetin against in Malaya, 409
  U. S Navy, number of cases of scrub typhus, 1054
TUADS, dermatitis patch testing, 850
TUBE: See also Duodenal Tube
  treatment of dyspareunia, [Frank] ★361
TUBERCLE BACILLI, resistance to *streptomycin*, 360
  resistant type hazard to public health, [Oatway] 490—C
  sure method of killing, 70
TUBERCULIN observation in BCG vaccinated children, Brazil, 1061
  reaction (intradermal), ascorbic acid effect on, 127
  skin reaction to, in French Army, [Debenedetti] 725—ab
  test and histoplasmosis, 474—E
  tests, BCG vaccine as substitute for Pirquet and Mantoux, 642
TUBERCULOSIS: See also Tuberculosis of Lung; under names of specific diseases and organs
  Argentine Congress of, 278
  case finding in Copenhagen, 894
  case finding, roentgen examination of emigrants, 641
  clinics, motorized, Va., 273
  complications: arachnoiditis, 510
  complications: diabetes, 849
  complications, lymph node bronchus perforation, [Valledor] 904—ab
  control, 1048—ab
  control evaluation, joint committee on, 475
  Diagnosis: See also Tuberculosis case finding
  diagnosis, A.M.A resolution on, 190; 260
  diagnosis, BCG vaccine as substitute for Pirquet and Mantoux tests, 642
  Hospital: See also Tuberculosis sanatorium
  hospital, enlarge, Livermore, Calif., 564
  hospital to enlarge, Hawaii, 273
  immunization, anatuberculin, Italy, 710
  immunization, BCG, [Wilson] 652—ab
  immunization, BCG, and late primary infection, [Malmros] 421—ab
  immunization, BCG, compulsory, Oslo, 642
  immunization, BCG, in all age groups; methods; results, [Rosenthal & others] ★73
  immunization, BCG, *in European countries* by Danish Red Cross, 129
  immunization, BCG, tuberculin and roentgen study in vaccinated children, Brazil, 1061
  in Alaska, (replies) [Seinfeld] 317—C; [Brauner] 347—C
  in France, 945
  in Germany, 200
  in New York, 994
  law, Soviet, 201
  lupusa, calciferol for, [Macrae] 285—ab; [Anderson] 1115—ab
TUBERCULOSIS—Continued
  miliary, promizole in, [Lincoln] 1113—ab
  National Tuberculosis Association, ("check tuberculosis" campaign) 112—E; (fellowships) 483
  patients with resistant type hazard to public health, [Oatway] 490—C
  Prevention: See Tuberculosis control
  rehabilitation (cardiac) by Altro Work Shops, Inc., 123
  Sanatorium: See also Tuberculosis hospitals
  sanatoriums, [Waring] 314—ab
  sanatorium, Onondaga, New York, 49
  Sicilian Tuberculosis Association meeting, 1110
  stomach secretion in, [Capo Porcel] 506—ab
  treatment, streptomycin, [Levaditi] 68—ab; 112—E; [Wolfer & others] ★249; [Waring] ★311; (home treatment) 313—ab; 314—ab; [Feldman] 422—ab; [McDermott] 497—ab; [Willis] 800—ab; (reply to Dr. Winter) [Waring] 1062—C
  treatment, diet in, 1073
  treatment, promin found wanting, [Waring] 314—ab
  treatment, streptomycin and sulphetrone, [Madigan] 903—ab
  treatment, streptomycin, development of aplastic anemia during, [Deyke & Wallace] ★1098
  unit, teaching and research, 567
  Vaccination: See Tuberculosis immunization
TUBERCULOSIS OF LUNG (pulmonary tuberculosis), absorption collapse in, [Graham] 137—ab
  ascorbemia in, [Lafontaine] 951—ab
  Case Finding: See Tuberculosis, case finding
  cavities, excretion of streptomycin into, [Steenken] 715—ab
  complications: asthma, [Cohen] 421—ab
  control; what percentage of patients have a positive sputum, 70
  diagnosis, Nocardia asteroides infection simulating, [Glover & others] ★172
  diagnosis, sputum examination, [Kirschner] 504—ab
  etiology of apical scars, 110—E
  patient with healed lesion be allowed to play a wind instrument? 146
  patients, open ward for, Colo., 338
  surgical treatment, 641
  treatment, streptomycin, [Jenkins] *715—ab;* [Steenken] 715—ab; [Barnwell] 948—ab; [Muschenheim] 949—ab; 1074
TUBING: See Tube
TULAREMIA, hazards of home butchering, [Palm] 208—ab
  in Arkansas, [Rigdon] 1113—ab
  in Illinois, [McDaniels] 351—ab
  pleuropulmonary, [Morgan] 350—ab
  treatment, streptomycin, [Johnson] 1003—ab
TUMORS: See also under names of *specific* organs and types of tumors
  Dermoid: See Dermoid cyst
  diagnostic clinics, Kans., 703
  Malignant: See Cancer; Sarcoma
  metastatic, to brain, [Naffziger & Boldrey] ★101
  pathology, fellowships on, through W. T. Grant Foundation, 786
  registries, 1063
  Wilms': See Kidneys, tumors
TURKISH Child Welfare Society, 794
TWINS, effect of added thiamine in, [Robertson] 1114—ab
  identical, as donor in homologous skin grafting, [Converse] 136—ab
  pregnancy and period of insemination after ovulation, 144
TYMPANIC MEMBRANE: See Ear
TYPHOID after wedding reception, Pa., 123
  antigen injection, herpes simplex after, 908
  carrier in high school cafeteria, Calif., 1055
  diagnosis, bone marrow puncture in children, [Rogge] 427—ab
  in troops after arrival in tropics, [Wielenga] 804—ab
  vaccine, N.N.R., (Pitman Moore), 329
  vaccine (T.A.B.), Council discusses, 692
TYPHUS decrease in southern states, 632
  diagnosis, serologic tests, [Smadel] ★1080
  epidemic, Colombia, 1009
  epidemic under control in France, 945
  Scrub: See Tsutsugamushi Disease
  U. S. of America Typhus Commission *Medal:* See World War II, Heroes
TYROTHRICIN, alcoholic solution, treatment *of leprosy, 830—E*

U

UN: See United Nations
U. S. P.: See Pharmacopeia, U. S.
U. S. S. R.: See Russia
ULCERS: See also Colitus, *ulcerative; De*cubitus; Peptic Ulcer; under organ or region affected
  recurrent, *of mouth,* 433

ULCERS—Continued
  Rodent: See Cancer, basal cell
  Varicose: See Varicose Veins
ULTRAVIOLET RAYS, baths, generalized, treatment of furunculosis, 955
  Lamps: See also Sunlamps
  lamps, Hanovia Lighthouse Portable Large Group, 690
  radiation generator, Hanovia One Burner Group Irradiation Alpine Ceiling Lamp, 691
  radiation, skin cancer produced by, [Coblentz] *1010
  Sensitivity to: See Light sensitivity
UNCINARIASIS: See Ancylostomiasis
UNCONSCIOUSNESS: See also Anesthesia; Sleep; Syncope
  repeated blackouts in flyers have permanent effects? [Wood] 208—ab
UNDERGRADUATE Work: Students: etc.: See Education; Education, Medical; School, Medical; Students; Students, Medical; University
UNDERNOURISHED: See Nutrition; Starvation
UNDULANT FEVER: See Brucellosis
UNITARIAN Service Committee opens Polish hospital, 788
UNITED HOSPITAL FUND exceeds goal, 888
UNITED NATIONS Appeal for Children, American Overseas Aid, 271
  crime prevention study, 788
  delay ratifying World Health Organization constitution, 335—OS
  Health Organization: See World Health Organization
UNITED STATES: See also American; Federal; National
  Army: See Army; World War II
  Atomic Energy Commission: See Atomic Energy
  Bureau of Entomology and Plant Quarantine, laboratory receives distinguished service award, 336
  Congress, Legislation Enacted: See Laws and Legislation
  Congress studies military training and draft legislation, 936—OS
  Congress, this session, 103—OS
  Department of Health, Education and Security: See Taft-Fulbright Bill
  employees, A.M.A. resolutions exposing activities to socialize medicine, 268
  government aid for needy college students urged by presidential commission, 1119—OS
  government aid regardless of established need, A.M.A. resolutions disapproving, 189; 257
  Government Control of Medicine: See Medicine, socialized
  Government Employees: See United States employees
  Government Hospital Building Program: See Hill-Burton Bill; Hospitals, veterans
  government plans approved for cancer, heart and mental disease research center, 477—OS
  government sells 108 hospitals and nurses homes, 191—OS
  government, Senator Langer would compare nation's expenditures on animals and *human beings*, 780—OS
  Hospitals, Building by: See Hospitals, veterans
  Laws and Legislation: See Laws and Legislation
  libraries, U. S. Department of State maintains in 3 other American republics, 736—ab
  Mission to Britain, 565
  Navy: See Navy
  not a member of World Health Organization, 935—E
  of America Typhus Commission Medal: See World War II, Heroes
  Pharmacopeia: See Pharmacopeia
  Positions Open for Physicians: See Physicians, positions open for
  Public Health Service: See Health, U. S. P. H. S.
  Social Security Act: See Social Security
  Supreme Court: See Medical Jurisprudence
  Veterans Administration: See Veterans Administration
  War with: See World War II
UNIVERSITY: See also *Education, Medical*; Schools, Medical; under names of specific universities as Columbia
  Argentine universities, new law, 793
  college president places English first, 257—E
  Congress on Hygiene of Schools and Universities, Paris, 278
  Health Service: See Students
  of California Naval Medical Unit African Expedition, one year, 336
  of Chicago (orders magnet for cyclotron), 785; (cancer research grants), 940
  of Edinburgh, Polish physicians move institution to Puerto Rico? 1101—E
  of Giessen, reconstruction plans, 201
UNIVERSITY—Continued
  of Illinois, (Moorehead Memorial Library) 702; (Quine Library of Medical Sciences) 785; (grants for research) 785
  of Leipzig to close by end of summer term, 710
  of Nebraska, (opens student health center) 703
  of Oxford, (travelling professor of surgery: Sir Hugh Cairns) 571
  of Rochester, (training center in field of *atomic energy at, for treating casualties*) 123
  Students: See Students; Students, Medical
UREA as diuretic, (discussion) 1026—ab
UREMIA, treatment, peritoneal irrigation (artificial kidney), [Connolly] 209—ab; [Bassett] 576—ab; [Murray] 716—ab
URETHANE, treatment of leukemia and metastatic malignant tumors, [Hirschboeck & others] *90
  treatment of leukemia, [Haden] 309—ab; [Haddow & Patterson] 643—C
  treatment, zinc content of leukemic cells, 731
URETHRITIS, abacterial, mapharsen for, [Khoury] 135—ab
  Gonococcic: See Gonorrhea
URINAL vs. Cunningham clamp, use in urine incontinence, 1118
URINARY SYSTEM: See also Bladder; Kidneys
  balantidiasis, 1118
  cancer (glandular), [Kittredge] 135—ab
  epithelial metaplasia, [Patch] *821
  infections, chemotherapy in elderly, [Hewitt] 717—ab
  tuberculosis, chaulmoogra oil and streptomycin for, new and rapid method, [Slotkin] 846—ab
  tuberculosis, percent with secondary infections, 72
URINATION, automatic micturition in spinal cord injuries, [Martin] 132—ab
  Inducing: See *Diuretics*
  Uncontrolled: See Urine Incontinence
URINE, Albumin in: See Albuminuria
  Blood in: See Hematuria
  coproporphyrins, 627—E
  diuretic factor in, [Little] 208—ab
  fluoride excretion in fluoride poisoning, 590
  gonadotropins in, hyperemia titration test using, for fetal death, [Zondek & others] *965; (correction) 1107
  hormone excretion and testicular cytology, [Goldzieher] 353—ab
  incontinence, 1118
  incontinence, *lumbopubic electroshock* in essential enuresis, [Pacifico] 653—ab
  incontinence, transurethral resection for vesical dysfunction, [Emmett & Beare] *1093
  17-ketosteroids in hypogenitalism, [Hurxthal] *16
  lead in, determine by rapid screening test, [Cholak] 1069—ab
  nitrogen output after injury, [Beattie] 583—ab
  of Pregnant Women: See Gonadotropins, chorionic
  phenylpyruvic acid in, in certain feebleminded patients, 629—E
  poliomyelitis virus in? 70
  Polyuria: See Diabetes Insipidus
  Protein in: See Albuminuria
  Pus in: See Pyuria
  Sugar: See Diabetes Mellitus
  suppression, decapsulation of kidneys, [Pilgerstorfer] 1115—ab
UROGASTRONE treatment of peptic ulcer, [Bockus] *294; [Boles] *531
UROLOGY, Hess (Elmer) prize, 636
  Italian Urologic Society, 792
UTAH Medical Foundation lecture, 339
UTERUS *Adnexa*: *See also* Oviducts
  adnexa, penicillin local injection, [Roux] 847—ab
  cancer, [Miller] *163
  cancer (cervical), diagnosis by vaginal, endocervical and endometrial smear; selective scraping method; biopsy, [Ayre] *513
  cancer (cervical), early, [Gurskis] 651—ab
  cancer (cervical), in young girls, [Speert] 797—ab
  cancer (cervical), intracavitary radium treatment, [Neary] 583—ab
  cancer (cervical), radiation treatment, [Lampe] 496—ab
  cancer (corpus), precursors of, [Gusberg] 797—ab
  cancer, correlation between vaginal smears and tissue diagnosis, [Isbell] 282—ab
  cancer, diagnosis, office procedure of taking vaginal smears, 808
  cancer (inoperable), relief of pain, 145
  cancer, Papanicolaou test for, 331—E; (reply) [Davidson] 711—C
  cancer (preinvasive) detect by smears, [Pund] 1112—ab
  cervix, granuloma inguinale with bone metastases, [Packer & others] *327
  fibrosis, [Shoemaker] 1112—ab
UTERUS—Continued
  Hemorrhage (Functional): See Menstruation
  hemorrhage, postmenopausal, 1117
  Mucosa: See Endometriosis
  tumors, x-rays for, [Pfahler] 898—ab

V

VACCINATION: See also *Immunization*; under names of specific diseases as Smallpox
  BCG: See Tuberculosis, Immunization
  rashes after, 590
  reaction, sulfonamide photosensitivity relation to, [Watkinson] 211—ab
VACCINE: See also Vaccination; under names of specific diseases as Influenza; Smallpox; Whooping Cough
  mixed, Council discusses, 692
VACTUPHONE Hearing Aid Model 3, 769
VAGINA: See also Vulva
  cancer, correlation between smears and tissue diagnosis, [Isbell] 282—ab
  congenital absence; use of lucite mold and skin grafts utilizing McIndoe principle, [Counseller] *861
  dyspareunia, causes; tube treatment, [Frank] *361
  granuloma inguinale, with bone metastases, [Packer & others] *327
  smear, Papanicolaou test for uterine cancer, 331—E; [Davidson] 711—C
  smears and tissue diagnosis, [Isbell] 282—ab
  smears in uterus cancer, [Ayre] *513
  smears, office procedure for taking, 808
VAGINITIS, Gonococcic: See Gonorrhea
VAGOTOMY: See Nerves
VAGUS Nerves: See Nerves
VALLEY Fever: See Coccidioidomycosis
VALVERDE Vasculator (Baker), 625
VAPORS, toxic effects, [Clinton] 1070—ab
VARICELLA: See Chickenpox
VARICOSE VEINS, esophageal, sclerosing therapy, [Patterson] 63—ab
  transient, on left side of tongue, 288
  treatment of edema of lower extremity, 144
  ulcer in hypertension, treatment, 71
VARIOLA: See *Smallpox*
VASCULATOR, Valverde (Baker), 625
VAS DEFERENS: See also Vasectomy
  anastomosis after purposeful division for sterility, [O'Conor] *162
VASECTOMY, how soon does absolute sterility appear after, 1010
VATER'S Papilla: See Duodenum
VEGETABLES: See also *Potatoes*
  nutritive value, [Maynard & Nelson] *1046
  oils, nutritive value, [Maynard & Nelson] *1018
VASCULAR: See Blood Vessels
VEGETATIVE Nervous System: See Nervous System, Sympathetic
VEINS: See also Blood Vessels
  Caval: See Vena Cava
  hepatic, thrombosis of, [Thompson] 576—ab
  Inflammation: See Phlebitis; Thrombophlebitis
  Injection into: See Injections, intravenous
  Thrombosis: See Thrombosis, venous
  Varicose: See Varicose Veins
VENA CAVA, inferior, ligation, [Ray] 576—ab
VENEREAL DISEASE: See also *Gonorrhea*; Lymphogranuloma, Venereal; Syphilis; Medicolegal Abstracts at end of letter M
  conference, Mich., 566
  control, Cook County, Ill., 785
  control, Fort Knox experiment, 1111
  control, in U. S. Army, new approach, 835
  control, order to curb among enlisted men, 119—OS
  in army, Norway, 999
  International Union Against, France, 53
  prophylactic, use of *sulfonamide ointment* for (Council discusses), 691
  seminar, 18th annual, 479
  symposium on "recent advances in study of," 271
  treatment (compulsory) ended, England, 487
VENEREAL WART: See Condylomata acuminata
VENESECTION and compression of limbs in *heart disease, (discussion)* 1026—ab
VENOCLYSIS: See Injections, intravenous
VENTILATION *and air borne infections*, 144
VENTRICULAR FIBRILLATION abolished by electric shock [Greene] 279—C
VERATRUM viride and magnesium sulfate in eclampsia, [Irving] 494—ab
VERNIX CASEOSA, hormone effects, [Lajos] 68—ab
VERRUCA Acuminata: See Condylomata acuminata
  plantar warts, [Blank] 422—ab
  treatment, [Fisher] 649—ab
  treatment, bismuth, [O'Connor] 1006—ab
  vulgaris, podophyllin for, 360
VERTEBRA: See Spine
VERTIGO: See also Syncope
  aural, endolymphatic hydrops (Ménière's disease), [Williams] 61—ab

AUTHOR INDEX

In this Index are the names of the authors of articles which have appeared in THE JOURNAL, the names of those who have read papers before Societies as published in THE JOURNAL and those whose articles have been abstracted in the Current Medical Literature Department. The * preceding the page reference indicates that the article appeared in full in THE JOURNAL.

For subject index see page 1123.

A

Abbott, H. L., 846
Abel, M. S., *624
Abernethy, T. J., 952, 952
Abramson, W., *686
Ackerman, A. J., 897
Adams, A. R. D., 285
Adams, B. J., 1006
Adams, E. M., 1069
Adams, W. M., 496
Adson, A. W., 650
Ainslie, J., 1069
Aldrich, R. A., 799
Alexander, H. L., *762
Allan, M. S., 282
Allen, F. M., 202
Alston, E. F., *230
Altemeier, W. A., 132, 798
Althausen, T. L., 899
Altschule, M. D., 1067
Altshuler, L. A., *873
Alves, M. W., 723
Amsterdam, S. D., 719
Ancona, V. C., 210; (correction) 413
Anderson, B., 1005
Anderson, T., 802
Anderson, T. E., 1115
Anning, S. T., 653
Appelman, A. C., 505
Appelmans, M., 141
Apperly, F. L., 795
Archer, G. T. L., 212
Arduino, F., 804
Arnesen, H. C., 505
Arnold, A., 134
Arnoux, 68
Aronovitch, M., 1068
Arvola, A., 286
Asher, R. A. J., 802
Asper, S. P., Jr., 209
Atherton, H. E., 503
Auerbach, O., 499
Averbach, A., 726
Avila, C., 845
Axelrod, A. E., 502
Axer, A., 653
Aycock, W. L., 844
Ayre, J. E., *513

B

Bacon, H. E., 352, *975
Badger, G. F., 952, 952
Badger, T. L., 799
Bahner, F., 141
Bain, K., *774
Baines, G. H., 211
Baker, B. M., 499
Bakwin, H., 1112
Balcer, E. A., 61
Bannon, J. H., 900
Barber, M., 652
Barfred, A., 205
Barnard, R. D., 136, 573
Barnes, A. R., *299
Barnwell, J. B., 948
Barondes, R. de R., 64
Bartels, J., 67
Bassett, S. H., 576
Baumgartner, A., 726
Bay, E. B., 498
Baylin, G. J., 1114
Beacham, D. W., *365
Beacham, W. D., *365
Beare, J. B., *1093
Beath, O. A., 648
Beattie, J., 583
Beaver, D. C., 651
Beca, M. F., 68
Beinstein, J., 1070
Beirne, D. P., 897
Belding, H. W., 720
Benard, H., 726
Bergefeldt, E., 139
Berkman, J. M., 63
Berrey, R., 897
Berris, R. F., 1066
Best, B. D., 423
Best, R. R., 1003
Betts, R. H., 577
Betz, H., 804
Binet, P., 803
Birath, G., 135
Biro, L., 586
Biscaye, A., 505
Biskind, M. S., 579
Bjerkelund, C. J., 505
Black, D. A. K., 354
Black, R., *965; (correction) 1107
Blalock, A., 279
Blank, H., 422
Bliss, E. A., *1096
Bloxsom, A., 1113
Blumberg, H., 134
Blumenthal, L. S., 498
Boccuzzi, G., 721
Bockus, H. L., *293
Bøe, J., 139, 505
Boehm, W. E., 62
Bogart, F. B., 206
Bogen, E., 715
Boger, W. P., 844
Bogetti, H., 586
Boines, G. J., 499
Boldrey, E. B., *96
Boles, R. S., *528
Booher, R. J., 207
Borgström, S., 139
Borjas, A., 212
Bornstein, F. P., 499
Bornstein, S., 497
Bostick, W. L., 715
Boström, L., 585
Bouquin, P., 951
Bowman, G. W., 845
Bowman, K. M., *851
Bradley, W. F., *742
Brain, W. R., 583
Bralow, S. P., 421
Bras, G., 804
Braude, A. I., *382
Brauner, E. P., 347
Brean, H. P., 897
Brennan, A. J., *870
Bresnick, E., *397
Brewer, L. A., III, 715
Brewster, J. M., 65
Bridge, E. M., 580
Bringel, B , 585
Brissaud, E., 723
Brodman, K., 846
Bronitsky, J., 500
Brown, B. R., *672
Brown, C. R., *624
Brown, G. C., 1069, *1088
Brown, H. R., Jr., 576
Brown, M., *152
Brown, R. H., 597
Brown, W. W., Jr., 502
Browne, F. A., 351
Brownlee, G., 903
Brunschwig, A., *28
Bryan, B. D., 800
Bryer, M. S., *1096
Bryson, V., 581
Buchert, W. I., 649
Buchthal, F., 803
Burch, G., 576, 898, *1011
Burgess, R. W., 1006
Burkey, R. E., 1069
Burns, R. E., 283
Burrows, H. J., 426
Burwell, E. L., 352
Busch, E., 803
Bushnell, L. F., 895, 1000
Butler, S., *441

C

Cabezas, J., 506
Cahill, G. F., 206
Cairns, H., 652
Caldwell, J. D., 1112
Calvy, T. L., *90
Camp, J. D., 650
Campbell, E., 800
Campbell, J. P., 1114
Campbell, W. E., 901
Cancelmo, J. J., Jr., 651
Canto, G., 949
Capo Porcel, M., 506
Cappell, D. F., 724
Cappon, D., 67, 652
Capps, R. B., *819
Carlinfanti, E., 726
Carlotti, J., 60
Carlson, A. J., *388
Carpenter, S. J., 1006
Carter, A. C., 717
Carter, B. B., 494, 502
Carter, S. B., 949
deCarvalho, L. P., 350
Caselli, E. G., 286
Cathie, I. A. B., 354
Cawley, E. P., 497
Cawston, F. G. (correction), 636
Cazal, P., 586
Chamberlain, R. H., 495
Chamberlain, W. E., 649
Chang, T. H., *230
Chapman, E. M., 902
Chase, J., *90
Chasis, H., 900
Chen, G., 208
Cherkin, A., 795
Chesnutt, C. R., Jr., 1113
Cholak, J., 1069
Ciaiolo, L. F., 206
Cianos, J. N., *932
Cimino, B., 428
di Cio, A. V., 355, 654
Clagett, O. T., 60
Clark, A. H., *690
Clarke, B. G., 1112
Clemetsen N., 67
Clerf, L. H., *733
Cleve, E. A., 498
Clifford, S. H., 952
Clinton, M., Jr., 1070
Coblentz, W. W., *1040
Code, C. F., 208
Codina Suque, J., 506
Coggi, G., 140
Cohen, A. A., 421
Cohen, M. E., 60
Cohen, S., 578
Cohen Rua, R., 506
Cohn, R., 1069
Cole, W. H., 801
Collins, C. G., *365
Colvin, M. G., 573
Connolly, E. A., 209
Converse, J. M., 136
Coodley. E. L., 646
Coon, G. P., 1004
Cooper, F. W., Jr., 502, 1065
Corkill, A. B. (correction), 788
Cornbleet, T., *152
Coryell, M., 494
Costello, M. J., 646, 1066
Counseller, V. S., *861
Courty, A., 505
Coury, C., 726
Cowan, A., *1098
Cowan, I. C., 426
Crafoord, C., 67, 135
Craig, J. D., 946
Crandell, W. B., 62
Craver, L. F., *244
Criep, L. H., *601
Crile, G., Jr., 353, 651
Cruickshank, C. N., 426
Crusius, M. E., 897
Culbertson, W. R., 132, 798
Culp, D. A., 649
Cunning, D. S., 647
Cunningham, J. A., 582
Curreri, A. R., 207
Curtis, A. C., 283, 283
Curtis, L. E., 423

D

D'Abreu, A. L., 285
D'Abreu, F., 211
Dahr, P., 804
Daland, E. M., *391
Dammin, G. J., 719
Danielopolu, D., 428
Dargeon, H. W., *459
Darling, R. C., *764
Daue, E. O., Jr., *622
D'Avanzo, C. S., 1066
Davidson, E., 711
Davidson, I. M., 427
Davis, L., 132
Davis, L. J., 66
Davis, W. D., 1067
Dean, K. F., 64
DeBakey, M. E., 898
Debenedetti, R., 725
Debre, R., 723
Dee, J. F., 1070
DeGraff, A. C., *1025
Delorme, E., 716
Deming, C. L., 901
Dennis, E. W., 502
De Oreo, G. A., 647
Derzavis, J. L., 1070
Desbuquois, G., 803
D'Esopo, N. D., 715
de Takats, G., *659
Deterling, R. A., Jr., 60
Deuel, H. J., Jr., 424
Deutsch, E., 212
De Vito, E., *593
Deyke, V. F., *1098
Dickinson, F. G., *333
Dickson, W. E. C., 723
Dienst, R. B., *84
Diepenbrock, A. B., *559
Dingle, J. H., 952, 952, *1084
Dobson, R. L., *672
Dodd, K., 716
Dodrill, F. D., 717
Doege, K. H., 1067
Doles, H. M., 722
Domzalski, C. A., 1065
Domanig, E., 904
Donio, D. A., 352
Donlan, C. P., 206
Donnell, G., 501
Doub, H. P., 136
Dowling, H. F., *8, 1070
Draper, A. J., Jr., *171
Dreisbach, R. H., 579
Duane, J. M., 501
Duchet, G., 136
Duerfeldt, T. H., 135
Duffy, C. E., 501
Dufrenoy, J., 899
Dulaney, A. D., *327
Durlacher, S. H., 495

E

Eagle, H., *873
Eames, J. W., 212
Eberlein, W. R., 580
Ecker, A., 500
Edlen, A., 951
Edwards, W. B., *221
Ehrlich, R., 60
Eichna, L. W., *764
Eisenberg, G., *388
Eisenberg, H. H., 1112
Eisman, S. H., 844
Ejrup, B., 67
Ekström, T., 139
Elvehjem, C. A., *915
Elwyn, H., 498
Emmett, J. L., *1093
Engel, G. L., 497
Engleman, E. D., 284
Engley, F. B., Jr., *37
Erbes, J., 902
Erf, L. A., 135
Erickson, P. T., *451
Erskine, F. A., *614
Escamilla, R. F., 423
Esersky, G. L., 845
Evans, J. A., 1070

F

Faget, G. H., *451
Fairbrother, R. W., 903
Farr, L. E., 718
Faust, E. C., 134
Favour, C. B., 497
Feierabend, F. L., *57
Feldman, M., *736
Feldman, W. H., 422
Ferraro, A., 133
Ferris, E. B., 497
Fetter, T. R., 125
Fetterman, J. L., 721
Fiannaca, P., 586
Fields, M., 424
Figueras, E., 1003
Finch, C. A., 352
Finland, M., 350
Fisher, A. J., 645
Fisher, S. H., 649
Fitzgerald, P. J., 499
Fleming, W. H., 647
Fletcher, F., 138
Flood, C. M., 211
Folbre, T. W., 210
Foley, G. E., 64
Follis, R. H., Jr., 1114
Fonio, A., 429
Forbes, G. B., 501
Forssell, P., 286
Fourestier, M., 725
Fourman, L. P. R., 354
Fralick, F. T., 577
Frame, E., 499
Francis, T., Jr., 579, 1069, *1088
Frank, R. T., *361
Franke, R., 725
Frankl, L., 724
Franklin, H. C., *221
Franks, M., 1066
Frazer, A. C., 354
Fredenhagen, H., 904
Freeman, N. E., 898
Freis, E. D., 205
Freyberg, R. H., 205
Fried, P. H., 282
Friedenwald, H., 946
Friedman, B., 1005
Friedman, M. D., 721
Friedman, M. H., *775
Friedmann, I., 66
Frisk, A. R., 724
Frobisher, M., Jr., 648
Frost, J. W., 1003
Fuchs, A. M., 578
Furcolow, M. L., 721
Furste, W. L., 132, 798
Furstenberg, A. C., *1

G

Gagnon, E. D., 1068
Gale, J. W., 207
Gammon, G. D., 1065
Gard, S., 724
Gardner, R. E., 898
Gardner, W. J., *984
Gaustad, V., 355
Gay, L. P., 56
Geiger, A. J., 495
Gelling, E. M. K., 208
Geisinger, R., 502
Gerrits, W. B. J., 505
Gerstl, B., 498
Giannestras, N. J., 496
Gilbert, N. C., *659
Gilchrist, H., 845
Giraud, G., 586
Girault, 68
Givner, I., 133
Gladnikoff, H., 67
Glover, R. P., *172
Goerner, J. R., 209
Goin, L. S., 1113
Gold, H., *1027
Goldberg, A. L., 423
Goldberg, M. B., 423
Goldner, M. G., 502
Goldstein, L. S., 950
Goldstein, M. S., *857
Goldzieher, J. W., 353
Gomori, G., 502
Goodell, J. P. B., 718
Goodman, R., *873
Goodyear, W. E., 578
Gordon, B. S., 63
Gordon, I., 351
Gore, I., 714
Gottlieb, P. M., 490
Gottschalk, H. R., 716
Govaerts, P., 804
Gowdey, C. W., 647
Grace, E. J., 581
Graham, G., 426
Graham, H. B., 903
Graham, S., 137
Grant, F. C., *668
Grant, W. M., 1005
Grayzel, D. M., 503
Greeley, P. W., 210, 495
Green, R. W., 717
Greenblatt, M., 1004
Greenblatt, R. B., *81

Greene, B. A., 279
Greene, H. J., 797
Greenebaum, J. V., ★923
Grekin, R. H., 283
Griffith, J. Q., Jr., 281, 918
Griggs, J. F., ★911
Grimm, *H.* A., 1114
Grocott, R. G., ★101
Groover, M. E., Jr., 198
Gross, S. W., ★517
Guernica, A., 904
Gurskis, E. E., 651
Gusberg, S. B., 797
Gustafson, G. E., 579
Guthrie, K. J., 584
Guy, L., 795

H

Haddow, A., 643
Haden, R. L., ★308
Hadley, S. J., 197, 919
Hadot, S., 68
Hagelstam, L., 653
Hahn, P. F., 718
Hale, D. E., ★981
Hale, H. W., Jr., ★1017
Hall, W. H., ★382
Hamblen, E. C., 353
Hamby, W. B., ★522, ★1039
Hamill, B. M., 491
Hamilton, P. B., 718
Hand, A., 719
Handler, P., 1111
Hanelin, H. A., 799
Harders, C. L., 725
Hardwick, C. E., 352
Hardy, J., 582
Hardy, M. C., ★20
Harken, D. E., 720
Harkness, J., 426
Harris, M. H., *1065*
Harrison, S. H., 426
Hart, A. D., ★117
Hartman, M. M., 122
Hassin, G. B., 134
Haynes, W. G., ★538
Heald, C. L., 318
Heath, C. W., ★764
Hebbert, F. J., 723
Hedinger, C., 128
Heilman, F. R., ★172
Heinbecker, P., 132
Hellebrandt, F. A., 1113
Heller, J. R., Jr., ★873
Hellman, L. M., ★79
Hellman, L. P., 846
Henderson, A. T., 206
Henle, W., ★437
Henthorne, J. C., 135
Hermann, L., 202
Herrell, W. E., ★172
Hertig, A. T., 282
Herweg, J. C., 501
Hewitt, H. B., 211
Hewitt, W. L., 717, 798
Hibbard, J. S., 424
Hibbs, R. E., 844
Hildreth, H. R., 948
Hill, D., 583
Hill, L. F., ★773
Hiller, A., 718
Hillis, B. R., 211
Hingson, R. A., ★221
Hinshaw, H. C., 422
Hinton, J. W., 720, 1065
Hirsch, E., 503
Hirschboeck, J. S., ★90
Hirschfeld, G., ★113
Hirsh, H. L., ★8, 1070
Hirshleifer, I., ★249
Hoagland, C. L., 579
Hobby, G. L., 63
Hodenpijl, A. K. A. G., 505
Hodes, P. J., 495
Hoff, P., 795
Hoffman, B. J., 1005
Hoffman, O. R., 1113
Hoffman, V., 286
Holt, J. F., 897
Hoobler, S. W., ★608
Horoschak, S., 352
Horrax, G., 645
Horton, C. E., ★870
Horvath, I., 502
Horvath, S. M., ★605
Hovenanian, M. S., 901
Hoyle, L., 903
Hoyne, A. L., ★597
Hoyne, R. M., 423
Hubbard, D. M., 1069
Huguley, C. M., Jr., 350
Humphreys, E. M., 498
Hunt, W. E., ★686
Hurxthal, L. M., ★12
Hussemann, D. L., 495
Hussenstein, J., 803
Husson, G. S., 719
Hutchinson, C. A., 137
Hutchison, J. H., 137
Hyde, B., 646
Hyde, L., 646
Hyman, B., 63
Hyman, H. T., 895

I

Imler, A. E., 206
Ingebrigsten, B., 355
Ingelfinger, F. J., 720
Ingraham, H. S., 351
Ink, J., 726
Insausti, T., 904
Irish, D. D., 1069
Irons, E. E., ★979
Irving, F. C., 491
Isbell, N. P., 282
Ishmael, W. K., 801
Itolz, O. A., 355
Ivy, A. C., ★909

J

Jackson, R. L., 501
Jacobi, M., 845
James, E., ★217
Jampolis, R. W., 798, 898
Jeffrey, J. S., 354
Jenkins, D. E., 715
Jenkins, H. P., 798, 898
Jennings, J. L., 1068
Jewett, J. F., 282
Jimenez-Diaz, C., 949
Johnson, B., ★873
Johnson, J. B., 1003
Johnson, R. M., 121
Johnston, C. C., ★371
Johnstone, H. G., 715
Jones, C. M., 352
Jones, G. H., 619
Jones, P. E., 122
Jones, T. D., 209
de Jong, K. R., 505
Jonsson, E., 585
Joplin, R. J., ★115
Joseph, H. L., 845
Josephson, B., 139
Joules, H., 802
Judd, A. R., 135
Jungeblut, C. W., 350

K

Kade, H., 506
Kahler, J. E., 1112
Kahn, J. B., 423
Kahn, J. W., 1065
Kahrs, T., 210
Kajdi, L., 580
Kalinowsky, L. B., 900
Kammerling, E. M., 1003
Kane, L. W., 64
Kaplan, N. O., 1066
Karlson, A. G., 422
Karns, J. R., ★622
Karp, G., 428
Katz, L. N., 714, ★1028
Kaufman, I. C., 1004
Kay, C. F., 844
Kean, B. H., ★104
Keating, F. R., Jr., 61
Keddie, F. M., 715
Kelby, G. M., 650
Kelly, A. R., 1006
Kelly, H. G., 501
Kelso, L. E. A., 1113
Kempf, G. F., 845
Kepler, E. J., 63
Kettel, K., 133, 207
Keutmann, E. H., 576
Keys, T. E., ★322
Khoury, E. N., 135
Kierland, R. R., 501
Kinney, T. D., 352
Kirber, M. W., ★437
Kirmse, T. W., ★593
Kirschner, L., 504
Kisner, W., 353
Kittredge, W. E., 135
Klasson, D. H., 716
Klauder, J. V., 282
Klein, A., ★445
Kling, C., 847
Knapp, M. E., 425
Knutsen, B., 847
Knutsson, B., 951
Koch, L. A., ★217
Koch, R. A., 136
Kohn, K. H., ★536
Kolb, L. C., 1069
Koletsky, S., 579
Kopeloff, L. M., 350
Kopeloff, N., 350
Korns, R. F., 351
Kostrubala, J. G., 210
Koven, A. L., 650
Kretschmer, H. L., ★441
Krieger, C. I., ★739
Kronfeld, P. C., ★957
Kun, E., 502
Kunkel, H. G., 579
Kupperman, H. S., ★84
Kurz, E. R. H., 283
Kuzma, J. F., 1003

L

LaDue, J. S., 919
Laederich, L., 586
Lafontaine, 951
Lahoz, C., 919
Lajos, L., 68
Lambert, E. H., 208
LaMotte, W. O., Jr., 918
Lampe, I., 196
Landsman, J. B., 802
Lane, S., 580
Langley, W. D., 65
Latienda, R. I., 355
Lauckner, J. R., 723
Lawler, S. D., 138
Lawrence, J. H., ★672
LeBoucher, Y., 725
Lederer, J., 110
Leeds, F. H., 898
Leichenger, H., ★388
Lembcke, W., 110
LeMone, D. V., 650
Lempka, A. W., 209
Lenert, T. F., 63
Lenz, M., 206
Leopold, I. S., 1003
Leriche, R., 65
Lesbre, P., 355
Leslie, E. I., ★73
Lesser, A. J., 643
Levaditi, C., 68
Levenson, S. M., 717
Levy, A. J., ★855
Levy, M. D., Jr., ★81
Lewis, I., 721
Lewis, N. D. C., ★866
Lichtenstein, B. W., 131, 576
Lichtenstein, L., ★827
Lieutier, J., 951
Light, A. B., ★137
Lincoln, E. M., ★593, 1113
Lindauer, M. A., 284
Lindert, M. C. F., ★90
Lindholm, O., 724
Lisser, H., 123
Lista, G. A., 355, 654
Little, J. M., 208
Livingston, S., 580
Localio, S. A., 1065
Lockwood, B. C., ★678
Loewe, L., 425, 503, 797
Loewinsohn, E., ★73
Logan, M., 497
Long, P. H., ★1096
Lord, J. W., Jr., ★169, 720, ★767
Lorhan, P. H., 716
Loud, N. W., 283
Loughlin, E. H., ★157
Louyot, P., 68
Low-Beer, B. V. A., ★672
Lowbeer, L., 801
Lowe, E. S., 651
Lowell, F. C., ★665
Lubin, E. N., 135
Luckhardt, A. B. (correction), 50
Lüdin, H., 140
Lull, C. B., ★221
Lull, G. F., ★773
Lumsden, C. E., 724
Lund, C. C., 717
Lurie, L. A., ★923
Lynxwiler, C. P., 580
Lyons, R. H., ★608

M

McBane, J. K., 64
McClintock, H. T., 577
McClintock, R. S., 581
MacCornack, R. L., 284
McCoy, R. H., 502
McCrea, L. E., ★679
McCullagh, E. P., 844
McDaniel, G. E., 134
McDaniels, H. E., 351
McDermott, W., 497, 949
McDonald, E. J., 501
MacDonald, R. M., 720
McFadzean, A. J. S., 66
McFarlane, M. N., 724
McGarry, H. I., ★957
McGraw, A. B., 62
Machle, W., 899
Macht, D. I., 1114
McKinley, W. F., 493
McLanahan, S., ★35
MacLean, H., ★536
McLennan, M. T., 350
McLester, J. S., ★919
McNeer, G., 207
Macrae, D. E., 285
McRae, D. F., 577
McShane, J. R., 722
Madigan, D. G., 903
Mahaim, I., 428
Mahoney, J. F., ★873
Mahorner, H., 353
Mallner, M. M., 719
Malmros, H., 121
Mamou, H., 586
Mann, G. N., 212
Mantz, H. L., 721
Marinaro, N. A., 198
Marshall, C., 1004
Marshall, S. F., ★718
Martin, H. E., 193
Martin, J., 132
Martínez de Salinas, J. L., 506
Mason, T. H., ★1039
Massell, B. F., 209
Massie, W. K., 500
Master, A M., 582
Matthaei, R., 1113
Matthews, C. S., 950
Mauer, E. F., 714
Maunsell, K., 503
Maxwell, R. W. D., 501
May, J. R., 847
Mayer-Gross, W., 721
Maynard, L. A., ★1013
Meakins, J. F., 1068
Meinberg, W. H., 918
Melicow, M. M., 206
Meneses Hoyos, J., 725
Mérida, J. C., 901
Merle, A., 355
Métras, H., 951
Meulengracht, E., 1066
Meyer, K. F., ★814
Meyers, L., ★169
Meyler, L., 141
Meyrieux, A., 951
Miale, J. B., 1067
Michelson, H. E., ★683, ★1034
Milder, B., 918
Miller, A., 1006
Miller, H. E., 715
Miller, N. F., ★163
Miller, W. W., Jr., 651
Milzer, A., ★536
Minnhaar, T. C., 654
Miranda, F. de P., ★512
Mitchell, G. A. G., 1115
Moe, G. K., ★608
Moehlig, R. C., 846
Molner, J. G., ★814
Monaldi, V., 653
Monod-Broca, P., 847
Montgomery, D. W., 1114
Montgomery, G. L., 584
Monto, R. W., 209
Moore, J. E., ★873
Moore, S., 650
Morelli, A., 725
Morgan, H. J., 350
Morgan, W. S., 65
Morgans, M. E., 285
Morra, F., 726
Morton, H. E., ★37
Movitt, S. I., 56
Muller, R., 803
Muench, H., ★873
Mulder, D. W., 1069
Mulholland, J. H., 62
Muller, B., 951
Murray, A. J., 355
Murray, G., 716, 723
Murray, R., 350
Muschenheim, C., 497, 949
Myers, G. B., 1066

N

Naffziger, H. C., ★96
Nalls, W. L., ★614
Neary, G. J., 583
Neely, J. C., 285
Neibling, H. A., ★742
Neligh, R. B., ★608
Nelson, E. N., 799
Nelson, H. M., 651
Nelson, M. G., 354
Nelson, W. L., ★1043
Nettles, J. B., 1112
Neuhauser, E. B. D., 897
Neuweiler, W., 140
Neyroud, M., 429
Nieburgs, H. E., 1112
Nimeh, W., 582
Nizet, A., 585
Nogues, A. E., 586
Nolting, W. S., 501
North, L. L., Jr., ★37
Norton, D. H., 283
Noufflard, H., 723

O

Oatway, W. H., Jr., 490
O'Brien, E. J., 719
Ochsner, A., 898
O'Connor, W. B., 1006
O'Conor, V. J., ★162
Oettlé, A. G., 66
Olivetti, R. G., 63
Oren, W. F., 844
O'Rourke, P. V., 719
Ortiz de Zarate, J. C., 904
Ostro, M., 1114
Ottolenghi, C. E., ★376
Overholt, R. H., 577
Owen, H., 798, 898
Owen, J. G., 719

P

Pacella, B. L., 350
Pacifico, A., 653
Pack, G. T., 207
Packer, H., ★327
Paine, T F., 350
Palm, J. M., 208
Palmstierna, K., 951
Panoff, C. E., 845
Paolino, W., 721
Park, J. H., Jr., 902
Patch, F. S., ★824
Paterson, E., 643
Patterson, C. O., 63
Paulino, A., Jr., 804
Paynter, G. C., 651
Peck, W. M., 715
Peet, M. M., ★608
Peirce, C. B., 206
Penfield, W., 646
Penner, L. R., ★1088
Peralta, M., 68
Perera, G. A., 899
Perez, D. R., 653
Perez, M., 506
Pernworth, P., 952
Perrone, J. A., 647
Perryman, C. R., 495
Peshkin, M. M., 949
Peyton, W. T., 62, 581
Pezold, F. A., 585
Pfahler, G. E., 898
Pfuetze, K. H., ★172
Phemister, D. B., ★545
Pickard, C. M., 719
Pickard, N. S., 1067
Piehl, M., 1067
Pilgerstorfer, W., 1115
Pirwitz, J., 654
Pitha, V., 1115
Platou, E. S., 424
Platt, D., 499
Platt, R., 583
Platzer, R. F., 421
Polley, T. Z., 1003
Poncher, H. G., ★775
Ponticaccia, L., 67
Por, F., 66
Powell, H. M., 205
Powell, V. E., 1005
Pratt, R., 899
Pribram, B. O. C., 714
Price, A. H., 495
Prince, G. E., 494
Pugh, I., 723
Pulaski, E. J., 940
Pullinger, B. D., 285
Pund, E. R., 1112
Purrazzella, G., 428
Putney, F. J., 352

Q

Quilligan, J. J., Jr., 579

R

Rafsky, H. A., ★739
Raimondi, A., Jr., 654
Rambert, P., 726, 726
Ramon, G., 141
Randolph, T. G., 581
Rankin, F. W., ★371
Ransom, H. K., 645
Rapaport, H. G., 949
Raskin, H. A., ★814
Rauchwerger, S. M., ★614
Rawls, W. B., 210; (correction) 413
Ray, C. T., 576
Ray, T., 898, ★1011
Reardon, H. S., 1112
Reese, A. B., 797
Reese, F. M., 62
Rehn, E., 903
Reich, N. E., 206
Reichel, P., 286
Reid, J. J. R., 715
Reidy, J. A., ★445
Reimann, H. A., ★239
Rein, C. R., 649
Reinhart, J. B., 206
Remolar, J. M., 355, 654
Renner, W. F., 722
Reye, D., 584
Reynolds, J., 801
Rhoads, C. P., ★305
Rice, R. M., 205
Richou, R., 141
Riesenman, F. R., ★230
Rigdon, R. H., 1113
Rigler, L. G., 650
Rimington, C., 503
Rinkel, M., *1004*

Ritchey, J. O., 844
Rivers, T. M., ★291
Robbins, J., 717
Robbins, S. L., 720
Roberts, S., 716
Robertson, E. C., 1114
Robertson, R. L., 502
Robin, S., ★1021
Robinson, J. W., 1000
Robinson, S. S., 1004
Robinson, U., 846
Rodbard, J. A., 505
Rodbard, S., 714
Roderuck, C., 494
Rogers, H. M., 61
Rogers, J., 720
Rogers, K. B., 504
Rogers, W. F., Jr., 209
Rogge, K., 427
Rogoff, B., 205
Rohret, C. H., 501
Rolzin, L., 133
Rosenberg, C., 134
Rosenfeld, I., 648
Rosenhagen, H., 585
Rosenthal, S. R., ★73
Ross, B. D., 895
Ross, S. G., 847
Roulhac, G. E., 1066
Rouse, M. O., 63
Roux, M., 847
Rowe, R. J., ★975
Rowe, V. K., 1069
Royce, B. F., 1005
Rubin, I. C., 490
Ruchman, I., 716
Rucker, C., 502
Rudström, P., 135
Ruegsegger, J. M., 845
Ruesch, J., ★851
Rupp-Haller, J., 140
Ruskin, A., 60, 493
Russek, H. I., ★930

S

Saffer, S. H., 845
Sageman, C. B., ★397
Salvi, P., 725
Sander, O. A., 61
Sapeika, N., 66
Saphir, O., 714
Saxen, A., 427
Sborov, V., ★819
Scarff, J. E., 900
Schaefer, A. A., 902
Schaer, S. M., ★1017
Schajowicz, F., ★376
Scheer, B. T., 424
Scheiffley, C. S., ★819
Schiff, L., 799
Schmidt, M. P., 505
Schneider, R. W., 844
Schoenbach, E. B., ★1096
Scholl, A. J., ★4
Schott, A., 504
Schrumpf, A., 210
Schulman, P. M., 578
Schultz, E. W., ★1075
Schulze, E., 725
Schwartz, H. G., 1066
Schwartzman, J., 897
Schwiegk, H., 428
Scott, J. A., 134
Scott, W. G., 650
Seaton, D. R., 285
Seed, L., 722
Seeler, A. O., 350
Seeley, S. F., 950
Seger, G., ★873
Seinfeld, E. D., 347
Selberg, L., 67
Senz, E., 798, 898
Sewall, S., ★827
Sexton, G. B., 647
Shaffer, F. W., ★437
Shaffer, J. M., ★382
Shanno, R. L., 948
Shapiro, R., ★249
Shapiro, S., 418
Shaw, D., 583
Sheppard, C. W., 718
Sherman, M. S., 500
Sherman, W. B., 494
Shideman, F. E., 1006
Shoemaker, R., 1112
Shorvon, H. J., 584
Shullenberger, C. C., 501
Shumacker, H. B., Jr., 902
Shute, E. V., 901
Shute, W. E., 901
Sigel, M. M., ★437
Silverstein, C. M., 1067
Simmons, D. R., 62, 581
Singer, K., 499, ★1021
Skelton, F. R., 901
Skinner, E. F., 719
Skinsnes, O. K., 353
Skowlund, H. V., 1113
Slotkin, G. E., 846
Smadel, J. E., ★1079
Small, J. T., ★742
Smith, D. C., 422
Smith, G. W., ★230
Smith, N. J., ★469
Smith, T. E., ★973
Smithwick, R. H., 205
Smyth, F. S., 1000
Snider, E. P., 577
Solis, J., 654
Solomides, J., 355
Solomon, H. C., ★873, 1004
Sos, J., 68
Sosman, M. C., 497
Soulas, A., 141
Spang, K., 903
Speert, H., 797
Speigel, I. J., 902
Spellberg, M. A., 421
Spencer, H. C., 1069
Spink, W. W., ★382
Spira, E., 653
Spizer, D., 800
Spock, B., ★811
Stacy, J. R., 801
Stafford, G. E., 209
Steele, J. D., ★554
Steelman, H., 646
Steenken, W., Jr., 715
Steiger, H. P., 1065
Steigmann, F., 1003
Stewart, G. A., ★932
Stewart, G. T., 426
Stewart, H. C., 847
Stewart, H. H., 211
Stewart, J. D., ★1017
Stigler, S. L., ★919
Stillwell, D. E., 503
Stobbe, G. D., 721
Stokes, J. H., ★873, 1065
Stoll, N. R., ★157
Stollreiter, H., 654
Stone, S., 1113
Stoner, H. B., 802
Straub, E., 424
Strauss, M. B., 578
Strauss, M. J., 64
Ströder, J., 428
Suarez, R. M., 846
Sulman, F., ★965; (correction) 1107
Sulzbach, W. M., 1067
Sunderman, F. W., 1003
Surtshin, A., 714
Sutler, M. R., 502
Sweet, L. K., ★8
Swenson, P. C., 495
Swift, P. N., 903
Szontagh, F., 68
Szucs, M. M. (correction), 196

T

Tager, M., 498
Tanner, F. W., 495
Tanner, W. A., 502
Tasker, S., 1004
Tatham, C. M., 1114
Taylor, H., Jr., 283
Telfer, J. G. (correction), 50
Temple, W. J., 494
Tenner, R. J., 1006
Terry, L. L., 64
Test, F. C., 719
Thomas, E. P., ★365
Thomas, N., 716
Thompson, H. L., ★752
Thompson, R. B., 576
Thompson, W. O., ★314
Thygesen, P., 429
Tickle, T. G., ★969
Tillotson, K. J., 1067
Tobin, J. R., Jr., 498
Tocantins, L. M., ★616
Tredway, J. B., 846
Trimble, I. R., 62
Troxil, E. B., ★920
Trueman, K. R., 577
Tuckerman, L. B., 643
Tuovinen, P. I., 427
Turner, H. B., ★327
Turner, T. B., ★873
Tweedall, D. C., 1006

U

Ungerman, A. H., 801
Updyke, E. L., 648
Upjohn, R. H., 902

V

Vaccarezza, R. F., 654
Vaccaro, H., 506
Vaisman, A., 68
Valledor, T., 904
Valls, J., ★376
van der Hal, I., 429
van Doormaal, T. A. J., 429
Van Duzen, R. E., 351
van Loghem, J. J., 138
Van Ravenswaay, A. C., ★435
van Rijssel, T. G., 141
Van Slyke, D. D., 718
van Spanje, A. J. H., 725
Varela, G., 845
Vergelin, M. E., 506
Verjaal, A., 585
Verniory, A., 804
Veseen, L. L., 651
Victor, R. G., 1005
Vincent, E., 138
Vin Zant, L. E., 424
Vogelsang, A. B., 901
Volwiler, W., 352
Vosburgh, G. R., ★79

W

Wagner, F. B., Jr., 495
Wahl, P. N., 652
Walker, A. E., 1004
Walker, N. F., 1114
Wallace, J. B., ★1098
Walter, L., 801
Walters, W., ★742
Ward, R., ★559
Waring, J. J., ★311, 1062
Warren, S., 418
Warring, F. C., Jr., 64
Wartenberg, R., 1062
Warter, P. J., 352
Watkins, C. H., 501
Watkinson, G., 211
Watson, W. L., 950
Wattenberg, C. A., 352
Way, G. T. C., 797
Weaver, M. R., 1114
Weaver, T. A., Jr., ★686
Webster, A. L., 426
Webster, J. E., 580
Wechsler, I. S., ★517
Wedge, B. M., 1065
Weiner, M., 418
Weingarten, M., ★739
Weir, J. F., 63
Weiss, R. S., 716
Weisse, K., 506
Welch, K. J., 649
Welch, M. L., ★748
Welch, S. H., 897
Weller, S. D. V., 802
Welsh, A. L., 716
Welti, H., 904
Weltman, E., 67
Wenner, H. A., 502
Wernick, E. D., 799
Wertman, M., 493
Wesselhoeft, C., 56
Wetterdal, P., 67
Weyde, R., 504
Weymuller, C. A., ★217
Wheatley, D. P., 426
Whetnall, E., 503
Whitacre, F. E., ★221
Whitacre, R. J., 645
Whitaker, T. R., 647
White, P. D., 60
Whitehead, M., 135
Whitfield, R. D., 800
Wicks, C. A., 577
Wielenga, D. K., 804
Wilburne, M., 714
Wilder, R. M., ★322
Wile, S. A., 499
Wilkinson, C. B., 1003
Wilkinson, J. F., 138
Wilkinson, M. C., 137
Willcox, R. R., 212
Williams, H. L., 61
Williams, J. M., 799
Williams, R. H., 209
Willis, H. S., 715, 800
Wilson, A., 802
Wilson, G. S., 652
Wilson, J. W., ★742
Winn, J. S., 1112
Winsauer, H. J., 844
Winter, R. E., 1062
Wintrobe, M. M., 350
Wohlfart, G., 803
Wolf, H. L., 578
Wolfer, H., ★249
Wolff, H. G., ★764
Wolffson, S. M., 799
Wolinsky, E., 715
Wood, E. H., 208
Wood, E. M., ★113
Wood, F. G., 137
Woodard, W. K., ★397
Woodland, L. J., 138
Woodruff, A. W., 427
Woodruff, R. L., 421
Woods, F. M., 577
Woolley, P. V., Jr., 501
Worster-Drought, C., 137
Wright, E. S., 205
Wright, G. P., 903
Wyatt, C. J., 1068
Wyckoff, R. W. G., ★1081
Wylie, J. A. H., 138

Y

Yeoman, E. E., 844
Yiengst, M. J., ★81
Young, L. E., 421
Yulle, C. I., 421

Z

Zachary, R. B., 584
Zager, S., 952
Zakon, S. J., 423
Zanetti, G., 654
Zapp, J. A., 900
Zeller, W. W., ★8, 1070
Zohman, B. L., ★930
Zondek, B., ★965; (correction) 1107
Zuschlag, E.,

INDEX TO PAGES

OF THE JOURNAL, ACCORDING TO WEEKLY ISSUES—VOLUME 136, JANUARY-APRIL, 1948

Pages	No.	Date
1— 72	1	Jan. 3
73— 146	2	Jan. 10
147— 216	3	Jan. 17
217— 290	4	Jan. 24
291— 360	5	Jan. 31
361— 434	6	Feb. 7
435— 512	7	Feb. 14
513— 592	8	Feb. 21
593— 658	9	Feb. 28
659— 732	10	March 6
733— 810	11	March 13
811— 850	12	March 20
851— 908	13	March 27
909— 956	14	April 3
957—1010	15	April 10
1011—1074	16	April 17
1075—1166	17	April 24